

THE
AMERICAN FARMER:
DEVOTED TO
Agriculture, Horticulture, and Rural Economy.

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"O FORTUNATOS NIMIUM SUA SI BONA NORINT
"AGRICOLAS." Virg.

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APRIL.

"Fled now the sullen murmers of the north,
The splendid raiment of the spring peeps forth;
Her universal green, and the clear sky,
Delight, still more and more, the gazing eye.
Wide o'er the fields, in rising moisture strong,
Shoots up the simple flower, or creeps along
The mellowed soil."

Farm Work for the Month.

SOWING OATS.

The work to be first despatched is the sowing of oats, and other spring grains not yet disposed of. The wet weather continued so long into March, has delayed the early spring work, and redoubled energy will be needed to bring it up. Let the oats be sowed at the earliest period practicable, and the grass seeds at the same time, immediately after the harrowing, and to be followed by the roller.

CORN PREPARATION.

We should not wish, under ordinary circumstances, to begin the planting of corn during this month, in this latitude. The first week of May is time enough. But the work of preparation must be accomplished by the close of the month, that there may be no delay when the right time comes.

Let it be considered that a due preparation of the ground now is not only much better for the crop, but saves a great deal of summer work, when time is more precious, and work more oppressive. There is no fact better established than the value of completing the work of the corn field much earlier than is done in our common practice. If we only turn the sod, and

then make our marks for planting, a very large portion of the proper work of preparation is left for the time in which the working of the crop should be accomplished, and this is necessarily carried so late into the summer, that the crop is damaged by the very means we take to make it. This valuable crop is so accommodating, that it admits of having liberties taken with it, and we commit it to the ground on a degree of preparation which tobacco and other crops would by no means admit of. To do it ample justice, turn the sod well, and roll and harrow till there is a good seed bed. Then the laying off and crossing is done without disturbing the bed, and the after working is completed before the earing begins, instead of being carried into and beyond the wheat harvest.

To be able to plant close enough to make a full crop, early working and early "laying by" are essential.

MANURING.

Whatever manures are to be used, the earlier they are got upon the ground the better, that they may be submitted to the solvent action of spring rains. There is often, we think, much loss by too long delay in this matter. Apply early, and keep them near the surface. For manuring corn in the hill, some well prepared compost of plaster, ashes, and rich mould, or poultry house manure, with little plaster, or good superphosphate, or mixed guanos, should be prepared. Where it is not practicable to give the land a sufficient broadcast manuring, it is very desirable to have it manured in the hill. Indeed, under any circumstances, and with seeds of every kind, a little fertilizing material in immediate contact with seed is advisable, to give the young plant a vigorous start.

TOBACCO BEDS.

As soon as the plants are started, give them a dressing of rich compost, or some other fertilizer, to be repeated every ten days. Their security from the fly is dependent mainly on their vigorous growth. When grass and weeds are well started, have the beds very thoroughly picked, and follow with a top-dressing. The plants being well up, to dress frequently with small applications of manure, and keep them free of grass, are the essentials of good management.

TOBACCO IN THE HOUSE.

Continue to prepare for market, as heretofore directed, taking care that the bulks do not heat and acquire a bad smell, which no after treatment will get rid of.

CLOVER SEED.

Wheat fields, not yet sown with clover, will be benefited, when not too much crusted, nor too wet, by harrowing with a heavy drag. Immediately after this sow clover seed, and follow with roller. On the oat field, sow clover seeds on the surface, after the oats are put in, and follow with roller.

PLASTER.

Plaster should be sown, if possible, during this month, on last spring's sowing of clover; and on the new seeding, when it shows the third leaf.

GATES AND FENCING.

Let there be no further delay in having these all put in best condition. The safety of crops will depend upon them, and the busiest working season should not be taxed with what should have been much earlier done.

SWEET POTATOES.

There is no root crop so profitable, perhaps, as the sweet potato, except for the difficulty of preserving it for winter use. Where there is convenient transportation, or where it may get the advantage of the summer and fall market, the price which it commonly brings should make it a favorite crop, and the refuse may at all times be profitably consumed by cows or hogs.

The potatoes from which plants are to be grown for future transplanting, should now be laid down. If convenient to use glass, as it may be where a small crop is grown, it will bring them forward earlier; but this is not necessary. A friend near Norfolk, Va., gave us, some years ago, his method of preparing beds for raising plants for a large crop. We plough up the place intended for the bed, six feet wide, running in length east and west; this we plough up to

the depth of twelve inches, and throw out the dirt on each side of the intended bed. This trench we fill with leaves from the woods, corn stalks, or wheat straw—the last being preferred. This we have well trodden down, and put on top of it fresh stable manure, about six inches thick, which must also be well trodden and packed. The sides are then straightened up and dirt packed against them as high as the manure. We then put on top of the manure about two inches of wood's mould, which being levelled, the bed is prepared for the slips. Lay these cross-wise of the bed, about an inch apart, and cover with fine wood's mould about an inch in depth. We usually have fine straw on each side of the bed, with which we cover up every night, or on the approach of rain, which it is necessary to keep off till the slips have sprouted well. After they make their appearance above the covering, we add another inch of mould, and after they appear through this, another still, which is enough.

The Vegetable Garden.

Prepared for The American Farmer, by DANIEL BARKER,
Maryland Agricultural College.

APRIL.

Continue to spade into the soil all refuse vegetable matter, and where practicable, strew it over with lime, to hasten the decomposition. It is much better to bury all such matter at once, than to lay it on heaps, where it loses all its most fertilizing properties. When placed beneath the surface of the soil the greater part of the gases will be retained, till again taken up in combination with water by the roots of the plants. Seeds not yet planted should be got in as early as practicable, otherwise a whole season may be sacrificed. Great activity will now be required in hoeing and cleaning; weeds will grow apace, and the annual grasses, &c., if allowed to gain the ascendancy now, will scatter much seed and be a constant annoyance during the whole of the season afterwards.

ASPARAGUS.—The young plants will now be in a good state for planting in beds, which, according to former directions, should be in a good state to receive them.

BEETS.—Sow the early Red Bassano, and the Castelnaudary for a full crop.

CELERY.—Sow on a warm border, which will come up in good time to make good plants for fall supply. Transplant, upon a bed three parts rotten dung and one part loam, the plants from the first sowings.

CABBAGE.—A sowing of two or three kinds now will furnish a supply of useful plants to fill up vacant plots, as summer crops are taken off. The Winningstadt is a capital one to sow now to fill up gaps, as it may be planted as close as sixteen inches. Premium, Flat Dutch, Stone Mason, and Drumhead Savoy are kinds that should be largely relied upon.

CAULIFLOWERS.—Continue to plant out the strongest plants from the stock kept through the winter. Those which have been brought on under glass will be getting sufficiently advanced to be benefitted by applications of liquid manure, to keep them in a free growing state. Let the soil be constantly stirred about them.

BEANS.—The dwarf or bush varieties, such as Early Valentine, Early Yellow Six Weeks, and Dun Cranberry may now be sown. Sow also a few in boxes or pots to make good any that may miss in the rows. Also, from the first week in the month, the pole varieties, such as the old Red Cranberry, Scarlet Runner, and Indian Chief, for stringing; the Large Lima, Horticultural Corn Bean, and Rhode Island Butter Bean, for shelling.

LETTUCE.—Repeat the sowings of different kinds and thin out and transplant those advancing, as occasion may require.

ONIONS.—Sow the silver-skinned for pickling; sow very thickly and tread the ground very firmly, using but little soil to cover them.

POTATOES. coming up, should be hoed. Potatoes may still be planted, and any remaining out of the ground should be got in at once.

PARSLEY.—Sow in a rich border, very thin, and cover the drills with hemlock or cedar branches for about two weeks, then remove the covering, and the young plants will be seen peeping through. This plan hastens the germination of the seed, which is generally very slow.

PEAS.—The Champion of England, and Dwarf Blue Imperial, will be found capital kinds to sow now. Hoe between the rows of advancing crops, and draw the earth up each side of the rows; put sticks to those that are sufficiently forward.

RADISHES.—Make successional sowings of the turnip rooted varieties, to succeed those sown last month. Small sowings are best, each made as soon as the other is up.

SPIXACH.—Sow the Round Leaved, to succeed that sown in March. Sow for succession the improved long, purple eggplant, the Early York tomato, bellinose pepper, cucumber, melon-squash, early sweet corn, &c. Give plenty of air to

hot-beds, and whenever water is needed, use it in a tepid state. Transplant, or pot, egg-plants, peppers, and tomatoes, and keep them growing vigorously. Thin out all advancing crops as soon as sufficiently advanced. This should always be done in due time, and at two times; in the first instance leave double the number you intend to retain as a permanent crop, to meet accidents to which young seedlings are liable, and then thin them to the proper distance when such danger is considered over.

The Fruit Garden.

Where fine fruit is a desideratum, the thinning out of the branches of peaches, if not previously done, should be attended to forthwith, removing all the foreright wood shoots. As blossom buds appear very thick this year, it is very important to take off a portion of those which are ill placed. As the peach and nectarine advance in age, and require a full complement of wood and circumference allotted them, in order to insure fine fruit, we have found it necessary to pursue the system of thinning out, that the trees may be maintained in a healthy fruit bearing condition, and not weakened by crowding with too much wood. Where disbudding is practiced, it should be proceeded with, more or less, according to the development of vegetation; and this we may expect will now be rapid. Constant attention will be necessary in order that the removal of shoots may be gradual.

New plantations of strawberries (in dry weather) will require an abundance of water. Hoe between the rows of old plantations, taking away, where necessary, some of the longest of the litter, &c., which may have been used as a covering during the winter, then follow with a dressing of lime, using it before an expected shower, that it may be washed into the ground, which we have found to be of great benefit in destroying slugs, and benefitting the plants. Strawberries, in pots, under glass, should have plenty of air, (but no cold draughts) a dry atmosphere, and to be kept near the glass. Plants in fruit must also have plenty of air, in order to get a full flavor. Top-dress raspberries with half decayed barn yard manure. Cut down the autumn bearing raspberries, cut away all suckers but two or three, and give them a top-dressing of manure. These never succeed unless they are kept quite thin. Look over grafted trees, and remove all shoots below the scions. Complete the planting of all fruit trees, strawberry plants, &c. Where grape vines, raspberries, blackberries, &c., are laid down in the autumn, they

should now be taken up and secured to stakes, &c. Grafting, if not completed, may be continued during the early part of the month. Use every means to destroy and prevent the attacks of insects upon fruit trees, &c. After high winds, look to newly planted trees, and have them well secured to stakes and the earth made firm around them. Apply soap suds and liquid manure to strawberry beds, grape vines, raspberries, peach trees, &c. Any person who has applied liquid manure to his fruit trees, &c., when in a growing state, can have no doubt of the great benefits which they have derived thereby; nevertheless it is surprising how few there are who adopt it.

The Flower Garden.

"Return, Sicilian Muse,
And call the vales, and bid them hither cast
Their bells and flowers of a thousand hues.
Ye valleys low, where the mild whispers use,
Of shades, and wanton winds, and gushing brooks,
On whose fresh lap the swart star sparingly looks,
Throw hither all your quaint enamell'd eyes,
That on the green turf seek the honied showers,
And purple all the ground with vernal flowers."

All operations in the flower garden should be concluded soon as possible; finish, if not already done, the pruning of roses which may have been left unpruned for the purpose of retarding their bloom. Let all flower beds be prepared when the weather is dry. Bedding plants, as verbenas, geraniums, heliotropes, petunias, &c., should be exposed as much as possible, night and day. Be in no haste to plant out, as we may yet have frosts and cold rains. Pot off plants newly rooted, and if convenient, give them the benefit of a hot-bed frame, to induce new roots to form Hollyhocks, planted the beginning of the month, will bloom well this season; the soil for hollyhocks should be deep and rich, and the plants from seeds or cuttings planted last fall. Plant the seeds of annuals, and thin out those sown in March, and the straggling kinds will be benefitted by topping. There are very few who know all that may be done with annuals, by giving a rich soil, plenty of room, and occasionally pinching out the tops of the leading shoots. Pinks and pansies—these should have a rich top-dressing now, taking care to stir the surface of the beds before it is applied. Take advantage of favorable weather for the destruction of weeds, &c., and to get flower borders well cleaned, it will be advisable to run the hoe through these, even if merely to stir the surface. Continue to

regulate the stems of advanced herbaceous plants, tying them up if they require it.

Climbing vines, &c., should be frequently looked over and regulated as they advance in growth. Plant out in beds gladiolus roots, Ixias, Ferravia, or Tiger flower, Tritomias, &c. Continue to plant evergreens, taking the precaution to water them well at the time of planting, and occasionally, afterwards, to well mulch the surface, and, if but a few choice plants, to sprinkle the foliage over in the evenings of dry days. These attentions will enable late planted evergreens to grow well in most cases.

Grass lawns should now have every necessary attention, or the consequences will be a burnt up lawn by June, and the predominance of coarse grasses. Proper care of grass lawns not only preserves their beauty for present enjoyment, but improves their quality; frequent mowing tending to waken the coarse grasses, and encourage the finer kinds. A sprinkle of guano where the turf is poor will be very beneficial now. Grass newly from seeds should be handled very carefully, and not rolled till after it has been once mown. It is a good plan to mow seed grass as soon as it is strong enough, and leave the mowings on the ground; the turf will look unsightly for a short time, but it will be immensely benefitted by the mulch of its own material.

DISSOLVING BONES.—Bones dissolved, or reduced by any process, are one of the best manures, and every farmer can save and dissolve a great many each year if he will only set about it in the following manner: Get a large cask or box—a sugar hogshead is as good as anything—set it out where it will catch all the rain that falls, and into this throw your bones and ashes as fast as you make them; the ashes should be the greater bulk, so that the bones will be completely embedded in the ashes. The rains will keep the mass moist, and the lye will act on the bones, and completely dissolve them in from six to twelve months. Should there not be enough rain fall to thoroughly moisten the whole mass, chamber lye should be added, or water sufficient poured on to make up the deficiency. There should be two casks or boxes, so that when the one is full it may stand while the other is being filled, and in the meantime the bones become thoroughly dissolved. Some say that a little caustic lime added to the ashes, helps to dissolve the bones faster. This I have not tried, but the former I have, and know it to be a good thing; and would advise all to save and prepare the bones on their farms in this simple, easy, and inexpensive way.—*E. A. Richl, in Farmer's Ad.*

For the "American Farmer."

Intensive and Extensive Farming—Sheep in the Southern States.

French writers, on rural economy, find it convenient to divide practical agriculture into two equally important systems of cultivation. To one is applied the term *intensive* farming, as indicating the concentration of capital, labor and fertilizers on a comparatively small surface, while the other is called *extensive* farming, because labor, capital, and, sometimes, manure, are employed over a wide area. Under favorable circumstances, both systems may be combined, as a brief review of the subject will satisfy the reader.

The want of good roads to cities, on which to convey grain, hay, vegetables and fruits to needy consumers in walled towns, early led to the more thorough and intense working of the soil near them, to avoid famine and the pestilence that ever follows in its train. We know so little of these scourges of antiquity that few appreciate the necessity for improved farming and gardening developed by the rapid growth of cities and villages. While the physical wants of any given number of people remain the same from one generation to another, their social progress may call for a much larger supply *per capita* of agricultural products. When one sees wool and cotton made into carpets for the million, and leather into cushions and covers for carriages, he has ocular demonstration of arts and wants, whose demands on rural industry are as boundless as human pride and ambition.

In this country, cities and villages grow much faster than rural population, and as a consequence, the market price of all articles of food for man and beast, and of most raw materials of manufacture, steadily advance from one decade to another. The advance would now be much larger than it is if that part of the continent which belongs to the United States were not so highly favored by navigable rivers, lakes, bays, and by more than thirty thousand miles of working railways. While these facilities for cheap transportation greatly promote the most extensive system of tillage and husbandry, they are perhaps still more efficient in building up both old and new cities, towns and villages, which in turn create local markets for the products of the most intensive farming and fruit growing in their vicinity. The United States' Census Office estimates our population at the close of this century at something over one hundred million souls; and whether we study human progress in Europe or this country, all the indications favor the idea of a great advance in the market value

of real estate within the next twenty years. Without disparaging the propriety of concentrating capital, skill and industry, on a rather limited surface, it may not be amiss to refer to some of the advantages of improving large tracts of land by sheep raising and wool growing in the South.

In the first place all must see that we have not capital nor labor to cultivate, with the plough, more than a small fraction of the six hundred million acres in the late slaveholding States, and I respectfully submit to large landholders and others whether it will not give a better income from Southern soil and labor to cultivate the best perennial grasses that grow in Texas, and on the plains east of the Rocky Mountains, as well as the Bermuda, Orchard, and Kentucky blue-grass, (not to name others which the writer knows to be reliable in Georgia and Tennessee,) and raise wool, sheep, and other stock, than to cling to the old system of planting and wearing out plantations? On all rich lands, planting would now pay handsomely with slave labor. But slavery being dead, the important fact can neither be concealed nor denied, that all free laborers, whether white or black, naturally prefer the easy tasks of shepherds, in the care of sheep and cattle, to the prolonged labor in the field in raising cotton, rice, tobacco, or other planting staples. In all hot, summer climates, where tropical plants are extensively cultivated, free men and women are found unreliable as field operatives, and mainly because they are measurably exempt from the stern necessity of being both industrious and faithful to their engagements, which exists in all cold climates. Instead of complaining of this state of things, and sometimes losing money by placing too much confidence in the stability of freedmen, it is better to adapt our agriculture to the instincts and idle habits of the persons with whom we have to deal, and let them be shepherds and shepherdesses in our employment, rather than common field hands.

By a judicious selection of grass adapted to one's soil and climate, permanent pastures may be formed at little expense; and at this time, fair sheep—say half-blood merino—may be bought in the Northern States at about a dollar a head, to be delivered after shearing. There it costs a dollar a year, or more, to keep a sheep, while the writer keeps them in East Tennessee at a cost of some twenty-five cents a head. Limestone, blue-grass lands are cheap here, and equally well adapted to grazing to the best in Kentucky. Poor land will pay better in Bermuda and other grass than in any hoed crop what-

ever, while rich land pays better in meadows, in the South, than in corn or cotton. The fact should be borne in mind, that many cities like Atlanta and Columbia send a thousand miles for the hay yearly consumed. With grass and sheep, one may easily recuperate all old fields, and soon double the value of almost any Southern landed estate. In making annual crops of wool and mutton, sheep operate on the *extensive* system of good husbandry—drawing nourishment daily from mountain sides, hills, plains, valleys, and coves. Where they rest at night, in yards or folds, and drop the residuum of their food, (on poor land it may be,) they foster the most *intensive* system of tillage in root crops, grain, or cotton, by supplying largely the best manures, which cost nothing; and where sheep are properly kept, needs no hauling or spreading. These hints are probably sufficient to indicate the fact that either the Southern grasses of Texas and the West India Islands, or those of Europe and the Northern States, will grow on nearly every acre of Southern soil, and pay a better income than planting ever can, take one year with another, and depend on free laborers. Texas has four species of "mesquite," which deserve a trial in all the cotton States. The writer has tried one of these, and Bermuda grass, in Georgia, with satisfactory results.

Gap Creek, Knox Co., Tenn. D. LEE.

For the "American Farmer."

The Range of Bees' Flight.

This is a subject of great importance to bee keepers, as it has been supposed that bees fly only about three (3) miles when collecting honey, consequently there was a fear lest the apiary might be overstocked.

Having ascertained that there was no bees on Kelley's Island, (Lake Erie,) in the spring of 1866, we established an apiary of the Italians there, for the purpose of rearing more Italian queens, and ascertaining the flight of the Italians for food. In less than a week after they commenced flying there, they were at work on the opposite end of the Island, more than five (5) miles from their hives. This season we shall carry some of the Italians out on the water, in a bee hunting box, and ascertain just how far they will work to and from the hives or feed. We are of the opinion, however, that they will not work as far on the water as on the land, where there is a continuous supply of flowers to lead them off from the apiary. We will report further at the close of the season.

W. A. FLANDERS & CO.

Shelby, Ohio, Feb. 23, 1867.

Farming and Clover in Northwest Georgia.

Editors of American Farmer:

Inclosed find two dollars (\$2,) my subscription for that old and valuable monthly the *American Farmer*. Pardon me for not remitting the money sooner; I have been waiting to get subscribers is one excuse for the delay, and I hope soon to send you some new names, as I have had the promise of several to whom the paper has been shown. I am anxious to see a large circulation of the *Farmer* in this country. It will be of great value to the farmers here now that they have turned their attention to raising grain and grasses instead of cotton.

Clover grows here to a greater perfection than any place I have ever seen, keeping green and growing all winter, supporting cattle and keeping them in good order, with but very little of other food. You will recollect that when I removed to this country from Maryland, my neighbors tried to discourage me from raising clover, alleging that it would not grow in the South. Nevertheless, I sowed it, and it has far exceeded my expectations—growing on poor land as well as rich. In this country it is an evergreen, and grows all the year, and when once sown need not be repeated. The fields I first sowed are still beautifully set. Though they have been planted in corn, the culture of the corn crop has not destroyed its growth. If sown in wheat in the fall, the clover comes up in the spring and yields a better sward than when first sown. It far exceeds cotton, wheat, or corn, in value. The crop of hay will bring more than either the above named crops. As a pasture, it is equal, and as a fertilizer, it is of more value, than anything raised in the South. Many farmers have settled in this country, from Virginia and other farming States, and I know of no country that offers better inducements to good farmers than Northwest Georgia. You may hear from me again.

Respectfully,
Kingston, Cass Co., Ga. A. B. BEST.

The above, from a valued correspondent, was, by accident, mislaid, after its receipt, and has just reappeared. This is the gentlemen we have heretofore alluded to, who, when he went to Georgia, determined to sow clover seed "every month in the year," until he ascertained the right time. We hope to hear from him again, and often. [ED.]

It has been estimated that the money loss to England by the cattle plague has been \$17,865,000. in gold.

For the "American Farmer."

The Protective Tariff Bill.

MESSRS. EDITORS: There is at present no object more worthy of public attention than the protective tariff bill, which our wise Congress is trying to patch up. It is astonishing to me, that none of our able agricultural writers have taken up their pen to defeat this unjust, and for our country *ruinous* law. A protective tariff is a *curse* to any country where *agriculture* is *dominating*. Read history, go to any country where such exist, and you will find progress *slow*, or even at a *stand still*. Can a more *unjust* and *senseless* law be made than such as compels about 24,000,000 of people to pay protective duty to enrich about 1,000,000 of manufacturers? Even the laborers who work for them must, out of their scanty earnings, pay the toll to enrich their rich masters more and more. How much better would these laborers and their families fare, if they went West, where they, in a few years, by industry, would gain an independence, whereas they in their present position remain at the mercy of their hard masters until the grave embraces them. Why *force* our country to become a manufacturing country? No country, with *ample* and *rich* soil like *ours*, should ever attempt to favor manufacturers beyond such as can exist without protection. The time to do so may arrive, but not until hundreds of years have passed and the population has increased beyond the capacity of supporting them by agriculture; *then* artificial means are required to procure bread. Look at England! In spite of her riches and influence all over the world, what would become of the queen of the seas, if she was to be involved in a war of years' standing? What would become of her, if her artificially created industry did not find a market *all over* the world? She would perish to death by hunger! And why? because her population, kept at an unnatural height by her factories, would not be *able* to *make* or *find* their bread in their native country. What can induce a country like ours to create such a state of things? Nothing, gentlemen, but the *individual interest* of most of the men who advocate the protective tariff bill. **AGRICULTURE IS THE MOTHER OF OUR COUNTRY!** It cannot be denied. Point at any man in the United States, I do not care what his position or occupation is, if agriculture fails, he is bound to fail. Lawyers, doctors, merchants, ministers, mechanics and laborers, all would suffer, because they now are living by the products of agriculture, *direct* or *indirect*. And why now shall we submit to the more than unjust treatment of this most important class of our citi-

zens, by a protective tariff for the manufacturers? Protective tariff men will say, we also protect the agricultural interest by laying a duty on wool, flax, hemp, &c., &c. No, you do not, gentlemen; your protection of agriculture is a mere humbug. By your protection you only help the farmer to pay a *small part* of the high rates he has to pay the manufacturers for their articles. For instance, you give the farmer by your tariff a protection of 13 cents on a pound of wool, which raises the price per pound to 46 cents from 33 cents before the war. Well, before the war he bought—to mention only a few articles—his calico for 12½ cents a yard, now he has to pay 25 cents for the very poorest kind. Before the war he bought a yard of cloth for \$1, for which he now has to pay \$2.50. Before the war he bought a keg of nails for \$3, now he has to pay from \$7 to \$8. The average increase in price for agricultural products does not exceed 75 per cent., while his expenses, to obtain the same articles he used before the war, are increased from 100 to 150 per cent. Look at the labor he employs. Before the war he could hire help at \$12 to \$15 per month, and have plenty. Now, as the statistics of the Agricultural Department show, he has to pay an average of \$28 per month, and scarce at that. Before the war, he paid a mechanic from \$1 to \$1.50 per day. Now, he has to pay \$3. If this increase of expenses contributed to improve the situation of the laboring class, he would, any how, have *some* consolation, but it does not. The laborer has to spend as much more now than he did before the war as the increase of his earnings. The reason? Because he has to pay about 100 per cent. more now than then for the necessities of life. Doctors, lawyers, &c., &c., charge higher now than then, pleading, as a very good excuse, the high taxes. Merchants charge from one half to one quarter of a per cent more, pleading, for an excuse, enormous taxes. So you see that the taxes on all other branches of society fall back, direct or indirect, on the agricultural population. But how are we to obtain money for the Government treasury? asks the protective tariff bill men. Very simply, gentlemen, by *comparatively free trade and direct taxation!* Our debt is, say \$4,000,000,000, on which we have to pay an average interest of about 7 per cent., makes \$280,000,000 per annum. I have not taken the time to ascertain the statistic wealth of the United States, but I certainly remain far below reality, if I put it at \$100,000,000,000. Suppose a tax of one half of one per cent. per annum was levied on this amount, it would make the sum of \$500,000,000, sufficient to pay the interest on our debt and besides \$220,000,000 an-

nually of the principal. Through this system we also would be enabled to abolish the internal revenue, a still more hateful and injurious institution than the protective tariff. Also, this tax falls back on the consumer. This would enable us to do away with the whole host of internal revenue officers and half of the custom house officers who now absorb about 20 per cent. of all the taxes now gathered, besides millions that are lost by fraud. But the greatest blessing derived from the abolishment of these heinous taxes would be the improvement of the morality of the people. The taxes abolished, the temptation to avoid or break the law for sake of gain would be removed.

L. A. HANSEN, Sr.

Clifton, Fairfax Co., Va., March, 1867.

For the "American Farmer."

Answer to Inquiries from Cumberland County, North Carolina.

Your case is rather a hard one, but work and patience will make you succeed. Although you think draining will cost too much, still it is the base of your operations for improvement. Even if converted into a meadow, you will have to protect the land from surplus water; if not, the artificial grasses you sow will be supplanted by wild grasses, not fit for cattle food.

Well, you have to commence with draining say a ditch eighteen inches wide and from twelve to eighteen inches deep, every thirty feet, more or less, according to circumstances. When dry enough, trench-plough in the fall, throwing the furrow to the centre, and let the land lie in this rough state until spring. As soon as it is in fair working condition, harrow it perfectly even; spread good layer of lime and harrow again. Let it remain in this state for about three weeks. Then sow oats, two bushels to an acre, work with a cultivator, sow three hundred pounds of Peruvian guano per acre, and harrow well. If the land is cloddy, roll with a heavy roller and harrow again. This done, sow the following mixture of grass seeds:

Phleum pratense, (timothy).....	8 lbs.
Aire coespitisa, (hassock grass).....	8 "
Poa aquatica, (water meadow grass).....	8 "
Phalaris arundinacea, (reed canary grass).....	8 "
Holcus lanatus, (meadow soft grass).....	8 "
Trifolium repens, (white clover).....	4 "

and roll, if the land is not inclined to bake.

After the oats are cut, mulch the young grass with some rotten manure or compost. This will, if no particular unfavorable circumstances occur, secure you a good stand of grass. If some spots should fail, which you will be able to observe after the oats are cut, you may barrow such places and sow some grass seed on these spots before you mulch. Cattle must, under no cir-

cumstances, be allowed in the field. In fact, cattle should never be grazed on fields intended for meadow, but the aftermath be allowed to rot on the land. It is manure, and protects the plants against frost.

By securing a good stand of artificial grasses, the wild grasses will disappear. To keep up this meadow, you will have to mulch it every other spring. Fall mulching would be preferable, but as the land may be subject to overflowing, it would be useless and a waste of manure. +

In regard to your questions about keeping cows for making butter, I can inform you that it will pay even if you have to sell butter at thirty cents a pound. My dairy-book shows that I have made a pound of butter from every four gallons of milk. At a low calculation, a cow, well kept, will yield six hundred gallons of milk in eight months, so you can make your own calculation. The best cows for milk are the Ayreshires. For milk and fattening combined, the Durham, crossed with polled Galloway, and again crossed with Durham.

I forgot to mention that if your land is located so as to allow subsoil drainage, from two and a half to three feet deep, it would pay better by far than any surface drainage. But I suppose it is too low.

L. A. H.

Clifton, Fairfax Co., Va.

EFFECTS OF PEARLASH.—If our friends can in any way teach their wives, daughters, or cooks, to keep the pearlash out of their bread, all the yellow people, especially the yellow children, who are supposed to be turned yellow by the fever and ague, and bilious fevers, will soon be turned white. It is a great mistake to suppose that the yellow countenances of the West come from bile, when it is the enormous quantity of pearlash eaten in the bread that is reflected through the skin. Bread is the staff of life, it is said—and so it is—but it is the staff of death, too, in this country. Bad bread kills about as many people here as bad rum. So many people eat poisonous pearlash for bread that they die by inches. Dyspepsia, that great monster disease of the country, that deranges the liver, brings on costiveness, and thus finally kills the human victim, is half the time "pearlash." Here in the East—out of New England—we have driven off the pearlash-salæratous cooks, but not altogether. Pearlash lives here yet in bread, but in cities and towns we have nearly whipped out the murderers. In the distant Western towns, beyond the good hotels of the lakes and rivers, Pearlash, under the name of Salæratus, is King. It is not any wonder, then, that the people of the East turn yellow West, and sicken, not of fever and ague, bilious and congestive fevers, but of pearlash three times a day.—*Journal of Applied Chemistry.*

For the "American Farmer."

What shall we do with our Farms?

DINWIDDIE, March 7, 1867.

Mr. Editor:

The unexpected and rapid revolution which has come upon us of the South, in completely changing our system of labor, has apparently thrown all "at sea," and no man seems to know where he will drift. Some are looking in the distance in anticipation that some craft may heave in sight, and rescue a drowning man; others are catching at every imaginary object which presents itself, allured with the hope of getting something tangible, which may for the time at least stay his approaching end; others again, less hopeful, are making only the efforts of the last struggles, contending with the waves of disappointment and misfortune, and must of necessity soon perish. But there is a large class, whose picture, although clouded by the sorrows of past misfortune, can yet show at times a bright spot, who have struck out for the shore, trusting in the guidance and direction of a Divine Providence, who will lead them to a haven of rest. The Southern people are overburdened with land; the taxes upon this land *must* be paid, the labor to cultivate this land *cannot* be obtained, and now the question is, what must be done? I have not the vanity to believe that I can solve this question satisfactorily to all, but as it is from the interchange of views that great truths are established, I propose to lay before your readers what I conceive to be our better policy. There are some questions of vital importance to the landholders to be propounded and answered before he enters upon the first principles of the plan I propose. 1. Do his liabilities justify even an attempt to retain all the land he has? 2. Is it desirable or possible to be made profitable to keep his land? If he gives a negative answer to the former, then he should avail himself of every opportunity to dispose of his land to the best advantage of his creditors; for a man burdened with debt is far worse off than a man burdened with land. If he gives a negative answer to the latter, then let him dispose of so much of his land as will justify him in making the rest both desirable and profitable. Suppose, however, he can answer but in the affirmative, the question arises what must be done? In laying before your readers the plan I propose, I am not unmindful that I shall have opposition, for I see already, in the last number of the *American Farmer*, different views expressed. It should be the object of every farmer at present to have as much of his

land cultivated as possible, with an eye to its future improvement, and to do this is the sheet anchor of our future success. The man who can devise the best means to this end, is our greatest benefactor; and it must be done by council or advice one with another. Our landed estates must be divided into smaller farms, each farm having a comfortable and neat residence for its tenant; and every inducement we offer in the way of conveniences tends so much towards getting desirable tenants. Now, who must be the tenants? Not the negroes, for it is an axiom well established that they are incapable of successfully managing even a small farm profitably to themselves and to the owner. They have never been thrown upon their own resources, but have only executed what was devised by wiser heads. What they may in the future become, time will only show; but at present they are certainly unprofitable tenants, when left to their own plans. We must then look to a higher order of talent, and a race imbued with a higher order of moral principles. The negro must inevitably be the laboring class among us for the present, as the whites of the South have not been accustomed to the physical fatigue requisite for agricultural pursuits; so the white man must plan and the negro execute as in former times, until the whites become accustomed to assume all the responsibilities and withstand all the hardships of a farm; then they will be independent of the negro, and rather than be vexed and annoyed by them, will prefer, and even take pleasure, in making his bread by the sweat of his own brow. These small farms then must have white tenants—sober, industrious and honest—who will not only plan but work so far as he is able. He can employ as many negroes as are necessary, with his own labor, to work the farm successfully. He must be encouraged by his landlord, by the liberal inducements offered for improvement, and, as before stated, all the conveniences that can be readily furnished. He must have an interest in the farm for at least three years, and as much longer as possible. We must not expect to get the full value of our lands the first year in part of the crop or money, but must take into consideration the additional improvements in land, &c. It is useless to talk to us about the success of Yankee farming; we must have a system of our own, and we must have concert of action; have our agricultural societies; go, and carry our tenants; read, and write for our agricultural journals; theorize, and practice our principles, and let our neighbors know, by precept and example, what we are doing.

B. P. R.

For the "American Farmer"

Potatoes—Seed vs. Butt Ends,

With some General Remarks.

Reader, have you ever tested the matter, to ascertain which will yield the larger crop, seed or butt ends, cut so as the weights will be about equal. If so, you doubtless ascertained that the butt ends had considerably the advantage, both in quantity and quality, and were also some two weeks earlier. Why is this so? I answer, simply because the seed ends have more eyes and send forth a superabundance of shoots. Some years ago, I read in a Patent Office report where a parcel of potatoes that had been cut three or four days, and as a consequence considerably shrivelled, exceeded largely in amount a parcel that were planted fresh. My curiosity being excited upon this subject, I was led to try a number of experiments in order to ascertain the cause of this singular phenomenon. Without giving a detailed history of my operations, I ascertained that the cause was simply owing to the fact that the shrivelled portion sent forth fewer tubers. Upon this same principle we can readily account why butt ends exceed seed ends. After this, I improved my product largely, both in quantity and quality, by throwing out the tubers, leaving but a single stalk at a place. I have thus had seven single plants to fill a half bushel, eight would heap it, and the joint product of two plants weighed eleven pounds. The extra tubers can readily be transplanted and make a fine yield. They are more hardy for transplanting than the sweet potato, and yield equally as well.

Potatoes, as a general thing, are crowded too much for a large yield. A single tuber for every two feet square I think is sufficiently close, where the ground is rich, and I am not certain but a greater distance would not result advantageously. The most, however, that can be done now is to thin out your present crops.

MANURES.

Common wood ashes and barn yard manure, applied separately, perhaps suit the potato as well as any other manure.

JUNE PLANTING.

In the province of Ecuador, in South America, they, perhaps, raise the finest potatoes in the world. The climate there, generally, is about 80 degrees, varying but few over or under throughout the year. By planting in June, from the 15th to the 20th, and littering heavily, so as to protect the ground from the heat of the sun, we approximate the requisite temperature of 80 degrees, as the potatoes acquire the most of their growth

in September and October. Potatoes planted at this time, and covered with leaves or straw to the depth of six or eight inches, will present a much smoother appearance than those maturing in mid-summer. I am also confident that the yield is much larger, other things being equal.

PREPARATION OF THE LAND.

A green crop of rye, oats, clover, or any thing of the kind turned under about the middle of May, will greatly increase the potato crop. If this same crop be guanoed heavily, so as to make a large growth, so much the better. I have tried guanoes for the green crop and barn yard manure and ashes before planting, with the best of results. In fact, by this method of manuring and thinning according to directions elsewhere given, I invariably took the first premium wherever I entered my articles. For a large yield, June planting has decidedly the preference.

Respectfully, &c., N. C.

For the "American Farmer."

Fire-Fanged Manure.

This is manure that has been thrown in heaps "to rot," to use a familiar term of the farmer, and has undergone a high process of heating, and has assumed a whitish, mouldy appearance. It is also very light as compared with other manures. Few farmers are aware of the immense loss that is thus sustained. In a careful experiment, I ascertained that unheated barn yard manure increased a sweet potato crop a little over 100 per cent., while an equal quantity of fire-fanged made no appreciable difference. I am clearly of the opinion that a sufficient loss is thus sustained annually to pay the entire taxes of the people, or at least in the Southern States, not having much knowledge of what is done North. The fertilizing qualities, principally ammonia, are thus driven off, after which your manure is an inert mass scarcely worth carting to a field. Therefore use at once, or if it be necessary to bulk, use loam as a compost, so as to prevent heating. Respectfully, &c., N. C.

AGE OF SHEEP—HOW DETERMINED.—The age of sheep may be known by the front teeth. They are eight in number and appear all of a size. In the second year the two middle ones fall out, and their place is supplied by two large ones. In the third year a small tooth on each side. In the fourth year the large teeth are six in number. In the fifth year the whole begin to get worn. In the seventh year the whole fall out or are broken. It is said that the teeth of ewes begin to decay at five or six; those of wethers at seven.

Artificial Manures.

BY W. WALLACE FYFE.

[A Lecture delivered to the students of the Royal Agricultural College, Cirencester.]

[CONCLUDED.]

Sulphate of lime, or gypsum, is the most abundant of all the natural sulphates of earths or metals. Very large quantities of the pure gypsum, quarried in Derbyshire, Mr. Parr tells us, (*Letters to the Farmers,*) in an unburnt state and ground to powder, are sent to London, not only for adulterating flour, sugar, lozenges, &c., but for mixing with Peruvian guano, which it is supposed, by some, to render genuine by taking a pound or two of value off the ton. This adulteration is carried to an incredible extent. Chemically, the composition of gypsum consists of twenty-eight parts lime, forty parts sulphuric acid, and eighteen of water. Hence it is capable of supplying to plants lime, sulphur, and sulphuric acid. In a burnt state, when it has lost all its water, it is the well-known plaster of Paris. Burnt gypsum dissolves less readily than unburnt, and much water is in both instances required, since a gallon of water will not take up into solution exceeding three drachms of unburnt gypsum. A dressing of three cwt. per acre will benefit clover in some kinds of land, as it will other green crops requiring sulphur. As an addition to the dung heap, gypsum, in small quantities, is an important agent in fixing ammonia. It is, however, better suited as a fixer in the liquid manure tank, since it acts only in the presence of an excess of moisture. Agricultural salt, an article cheaply, extensively, and, it would appear, effectively used as a top dressing upon pasture, is by no means a pure material; but presented to us in the less concentrated form in which it is thus mixed up with impurities, it is the better adapted for a manure. Mr. Duckham uses it extensively on his pastures in Herefordshire; but he has informed me that, though the results, in the appearance and increase of the herbage, have been very marked, the use of it is attended with a serious risk to breeding ewes, which cannot be too widely known. This fact in his experience he has had confirmed to him by that of the agent for a nobleman in Wales, and of another practical farmer in a different part of the country; so that there can be no doubt that where salt has been applied upon the pastures, the cause of ewes either dropping their lambs prematurely, or, if going to maturity, bringing forth a diminutive and weakly offspring, has been, in these three instances, traced to the employment of salt as a dressing for grass. I hold

in my hand a most extraordinary pamphlet on "The Use of Salt in Agriculture," being prize essays published by the Salt Chamber of Commerce at Norwich, in which more than enough is certainly said of the value of this application. But without asking you to accept in its integrity a commercial puff of this nature, some of the positions advanced and the conclusions arrived at may, with propriety, be mentioned. Thus, it is said that when common salt, through the medium of rain water or otherwise, comes in contact with earthy bases of ammonia, phosphoric and silicic acids, potash, magnesia, &c., originally in the soil, or carried into it through the rain water or manures, it sets the ammonia, phosphoric and silicic acids, potash, &c., free, and makes them at once available for the nourishment of the growing plants. Hence the great importance of bringing salt into the soil to solve or bring into action the dormant fertilizing powers of soil and manures, for larger crops will inevitably follow its proper application. What, then, is its proper application? The first essayist says, "Salt should never be applied with the seed. In cold, heavy, wet, undrained land, salt cannot act by itself, nor in sterile land; and it is only in conjunction with other manures that it may do some good in such unprofitable land. Salt, applied with lime, will always assist the efficacy of the latter. The application of salt upon the breaking up of land, and then afterwards top-dressing in small quantities at different times, will be found the most beneficial and economical way; and it will also get worms, slugs, &c., out of the ground. Salt, applied to compost and manure, will always repay itself many-fold. The mixing of all manures containing either phosphates, potash, or ammonia, with an equal weight of salt, can only tend to make such manures more effective. Repeated top-dressings in spring in small quantities are far preferable to heavy ones at one time." I notice that, according to Dr. Voelcker's analysis, in some experiments on the growth of wheat, that the manure which was most successful in results both as to straw and grain was composed of one-sixth common salt. Now, common salt, or chloride of sodium, exists in all cultivated crops, especially roots—such as turnips and mangold-wurzel—and is therefore necessary to them, especially in places remote from the sea, or screened from the sea winds by hills. The usual influence of the sea-spray is said to extend inshore through seven miles of atmosphere, although in sea storms tree leaves in the direction of the wind have been found coated with salt crystals at twenty miles from the sea. Applied as a top-

dressing, salt invariably increases the weight per bushel of reaped grain, and it is advantageous to mix it with the farmyard manure or the water employed in slaking lime.) In the course of our preceding recommendations, we have not failed to commend the use of ashes obtained by burning couch heaps, and even by paring and burning hedge banks and fences, and in every other way that ashes are to be obtained. But it is to the experience of the American farmer that we must have recourse, if we would know the true manorial value of ashes, which, used in our own system simply as an auxiliary, are most conveniently employed in licking up the liquid manure oozings, and economising and distributing their fertilizing influences in a form in which they may thus be handled. A writer in the "Albany Cultivator" mentions having applied forty bushels of ashes per acre to a thin, gravelly soil some years ago, to the manifest improvement of the product. The ground, he says, was ploughed up the next spring for corn and potatoes, and the benefit of the application was plainly seen; the potato vines (as he calls them) withstood the severe drought of that year perfectly, and gave excellent fair potatoes, and the corn was equally benefited. The effect of the application of ashes in quantity is felt for several years. (For composting muck, ashes are of much value, nearly equal to lime, bushel for bushel, hastening the decomposition of vegetable matter and fitting it to benefit the soil. Wood-ash, as Johnston points out, contains a portion of common pearl-ash in an impure form, with sulphate also, and silicate of potash; hence the extensive use of wood-ash as a manure in every country where it can be readily obtained. Applied alone, wood-ash is beneficial to clovers, beans, and other leguminosæ. A common turnip manure, extensively employed in this country, consists of wood-ash mixed with bones in equal bulk. The common potash of commerce being obtained by washing common wood-ash with water as long as anything continues to dissolve, the lixuated or washed refuse which accumulates under this process retains behind a large portion of undissolved ash, containing silicate of potash, mixed with silicate, carbonate, and phosphate of lime, and this is found to be a manure remarkably well adapted for oats, being, however, most suitable for clay lands. Laid on to the extent of one or two tons an acre, its effect has been known to last for fifteen or twenty years. In Germany they frequently burn rye straw, and employ the ash as a top-dressing—the dry straw being strewn over the field, burnt, and the ash ploughed in. Johnston urges that the ash of the

husk of oats and barley now wasted would prove a valuable top-dressing to meadow land, young corn crops, bog oats, &c.; and mentions one miller in the north who makes two bushels of ash a day from the husks of the oats he grinds. The waste of this ash, he adds, long persevered in, can scarcely have failed slowly to impoverish the land. Dutch ashes are the ashes of peat burned for the purpose of application to the land. The best form of this application is probably, however, the far famed peat charcoal, whose powers, as a fixer of ammonia and liquid manure absorbent, are perfectly unrivalled. At one time peat charcoal promised to have a run—and I know an eminent London market gardener, Mr. Cuthill, author of "The Market Gardens 'round London," and numerous clever practical gardening treatises, who swears by it still.) My neighbour, when at home, the Rev. Henry Moule, of Fordington, in vol. xxiv., p. 1, of the "Royal Agricultural Society's Journal," recommends a system of earth closets, which has, after having been successfully tried at many places, been brought before the British Association and Social Science Congress, as carried out at one of the Wiltshire Poor-Law Unions. There is nothing new in Mr. Moule's system, the power of soils to absorb manure having been long familiar; but he claims for himself the merit of having first directed public attention to the repeated action and use of the earth. He has patented an earth closet for the purpose of carrying this on, so that the supply, admixture, removal, and drying of the earth may be satisfactorily and economically performed. But it is only in towns, he observes, where the delivery, stowage and removal of earth are attended with cost and difficulty, that any artificial aid for drying the compost would be desirable. On premises not cramped for space, the atmosphere, especially with the aid of a glass roof to the shed, would act sufficiently fast. The illustrations afforded of the efficacy of night-soil thus secured as a manure are necessarily minor ones. (A cottager at Bradford Abbas commenced the system in his large cottage garden in the spring of 1862. He applied the manure to patches of mangold and swedes, and the land-steward, who persuaded him to try it, never saw such fine roots as were then grown. In 1860 a farm bailiff received from Mr. Moule one cwt. of mixed earth from his stock of three cart loads, which had passed five times through a closet used by fifteen persons, and had subsequently occupied a shed for seven months. It was applied to a quarter acre of ground drilled in with swedes, whilst to the remainder of the field of four acres an equal dressing of super-phosphate

was applied. The crop, though injured by the rapid growth of weeds of that wet, trying season, was good. But the roots in the quarter acre which received the mixed earth, when pulled and weighed, exceeded by one-third any that could be found in the rest of the field. In 1861 this same field was sown to barley. Throughout the growth of the crop the appearance of this same quarter of an acre, with no additional manure, was manifestly superior to that of the remainder of the field, and the bailiff estimated the produce to be in the proportion of three to four. Mr. Moule calculates that the manurial value of a ton of dried earth, used five times, might be £2, 10s., and used seven times, £3, 10s.; and I have no doubt, if we can reconcile ourselves to it, we have here another cheap source of guano. The Chinese acknowledge the potency of no other manure, and public laws and private regulations are alike directed towards its preservation as one of the great necessities of life. We, who go upon the large scale of production, cannot descend to the minute manuring of the Chinese, however much more productive, because we have not the same superfluity of surplus labor to bestow upon it. But it is on all hands admitted that night-soil, although the most disliked of all manures, is, undoubtedly, in its dry state, weight for weight, the most effective of all known fertilizers—it contains so much of soluble saline matter; and being constituted from the food we eat, and which we desire again to grow, necessarily contains the elements essential to the growth of plants. In Paris, Berlin, and other great cities, the dried night-soil, with some admixture of gypsum or lime, is manufactured for sale under the name of *poudrette*, and transferred to all parts of the country around in casks. It is also dried and prepared for sale in London; and what is the substance known as animalized charcoal but night-soil, dried with gypsum and mixed with finely powdered wood charcoal? Being generally allowed to ferment, however, in the open air, without any admixture, a greater waste of substance probably takes place than of any other fertilizer of obvious value; and I am happy to see that on this College farm it is most carefully used up, although perhaps the vehicle—coal ashes and culm—could be altered and improved. Incidentally we have once or twice had occasion to allude to the application of fish and fish offal to the land. There are few substances in which putrefactive decomposition proceeds more rapidly than in fish; and often enough, when a large and unexpected haul has occurred upon our coasts, inopportune for their disposal in market, sprats, herring, pil-

chards, mackerel, &c., have gone to manure the land at something like sixpence a bushel. In these cases they are, however, little other than wasted; and frequently applied as they are as a top-dressing to pastures, are even deleterious and dangerous to human health. At all events, I know one melancholy instance of a poor little girl, who, in passing through a field covered with decayed herrings, unhappily caught up one, and smelling it, inhaled the deadly poison of its fumes, feavered and died. The manurial properties of fish and fish offal having, however, become very apparent, unusual attention has of late years been directed to the utilisation of the large quantities of fish unsuited for human food, and of the offal from large fishcuring places on the coast. The beneficial effects obtained by farmers in the vicinity of these supplies was not denied; but the object in view was to convert them into a portable state, and extend these benefits over the country. It appeared, at the same time, that in this event the supplies were likely to be largely increased by creating a demand, because the fishermen habitually cast away all useless fish which they capture. Numerous patents for fish manures were consequently taken out, but few of them have been carried largely into operation. But the failure of these sometimes complicated processes need not daunt those who simply seek to see waste fish converted into a dry manure. The manufacturers, possessed of a complete monomania for rendering things soluble, have, in fact, persisted in treating this, like all other substances, with sulphuric acid, whilst the strongest opinion exists that the water once removed, all that needs to be done is to reduce the fish refuse to a powder, for commercial purposes. A stove or steam flues to effect the drying, and a mill to grind it, would therefore be the extent of the apparatus required. Of the fish manures that have come into the market, without vouching for the process of production, we find the composition:

	I.	II.	III.
Water	9.77	12.15	7.56
Organic matter	53.55	53.27	87.06
Phosphates.....	4.72	6.44	0.56
Sulphate of lime.....	1.63	1.71 carbon	0.46
Common salt.....	26.49	22.29 alkaline	2.56
Sand	3.84	2.14	1.46
	100	100	
Ammonia	6.20	7.63	7.29

The value of the first would be about £4, 12s., of the second £5, 10s., and of the third, about £4, 16s. per ton. These were English samples. In a Portuguese sample, sulphuric acid had been used in the manufacture, and we must value it consequently the same as a super-phosphate:

Water.....	14.04
Organic matter	27.77
Bi phosphate of lime—7.00 bone earth made soluble..	4.48
Insoluble phosphates.....	1.60
Sulphate of lime.....	.36 17
Alkaline salts.....	6 14
Sand.....	9 80
	100.00
Ammonia.....	2 10

The value of this manure, derived mainly from the phosphate of lime, is only £2, 16s. per ton. Yet fish manures have commonly been offered at £8 or £9 per ton. The manufacture has, consequently, not been encouraged; but it is believed that fish refuse can be had at 8s. or 10s. a ton, and that four or five tons of raw material could be made into a ton of concentrated manure, at £2 a ton; and if the cost of manufacture were the same, £4 a ton, increased to £6 by retailers' profits, would bring it for that figure into the hands of the farmer Dr. Anderson, who has investigated this point, is of opinion that this might be accomplished by the fishcurers working up the offal and acting as manure manufacturers, and a good fish manure provided. Mr. Scot Skirving of Campton, a gentleman I have the pleasure of knowing very well, gives the result of some experiments with fish guano in East Lothian. The manure employed by him was composed of the heads, bones, and skin of fish (chiefly cod) dried in the sun, and afterwards ground into fine particles by machinery. In 1860 Professor Anderson requested Mr. Scot Skirving to test this Norwegian fish manure on the turnip crop, which he did; and the result was so satisfactory that he ordered a quantity from Norway, and made a further experiment in 1861, when it was found that whilst Peruvian guano in one plot yielded only at the rate of 15 tons 13 cwt. of roots per acre, and concentrated manure 20 tons, the fish offal gave 20 tons, 3 cwt.; but in another instance Peruvian guano yielded at the rate of 26 tons, 10 cwt. This experiment was made with a crop of purple-top turnips. From unavoidable circumstances, we are told the seed was not sown till too late, (23d to 25th of June,) and the weight of crop was generally less than it would otherwise have turned out. The actual cost of the fish offal imported in small quantity to Mr. Scot Skirving was £10, 7s. 6d. per ton—Dr. Anderson only valuing it at £8, 2s. In reporting upon this experiment, the former observes that a mixture of guano with bones in some form has generally given, in his experience, more satisfactory results than when the guano was used alone; and no doubt the fish offal ought also to be mixed with other manures; but it is when applied alone that the merits or demerits of a new fertilizer can be most effectually tested.

In a financial point of view, I do confess that things do not, however, look favorably for fish manure.

I had still upon my list for examination the manurial properties of blood, soot, sewage-manure; but the parting word must now be spoken. Gentlemen, I thank you for all your intelligent indulgence, your kindness, your courtesy, and attention. In all the audiences I have ever addressed, I have never felt myself more thoroughly appreciated. I came to enter into your College life, to test its discipline, and to add my quota to the endeavors to promote its objects. A man necessarily makes an attempt of this kind under diffidence and difficulties; but you have, by your admirable conduct, completely removed all hesitation that I or any one need feel in coming forward to address a body of intelligent young gentlemen, excellently grounded in the sciences that are taught here, and which really are the tests of useful education. Gentlemen, I wish you in rapid succession a series of lecturers far abler than I can pretend to be, assured that you deserve to have the best and highest of our men of science and knowledge contributing to your instruction and enlightenment. But this I know, that go where I may, I shall ever look back with gratification and delight to the days and hours I have spent within the walls of the Royal Agricultural College, and I shall carry away with me a favorable impression of the generous and manly spirit of fellowship that predominates amongst you, and the solid acquirements which, I am happy to tell you, your Rev. Principal is satisfied you attain.

What Stock Most Enriches Pasture?

It is generally accepted as a fact that soil under pasture grows fertile. When land is plowed and cropped, and pasture forms part of a systematic rotation, the soil under grass recuperates in power to grow grain. This is due to several causes, prominent among which is the thick turf formed and plowed under, thus supplying a quantity of manure for the succeeding crop. If a field were left in grass for a long time, and all the growth allowed to rot on the ground, we see no reason why the soil would not increase in fertility so long as this practice was continued. But were the grass removed in the form of hay each year, and no compensation made, no practical farmer would contend that the soil grew richer when subjected to such treatment for a long time. Land in grass, then, becomes rich only in proportion as the growth of vegetable matter from it—as roots, stems, leaves and seed—is returned for manure.

Land is enriched by pasturing for the production of grain in two ways; the formation of a sod to be rotted for manure, and the deposition of the solid and liquid excrements of the stock. It is important for the grain farmer to consider the kind of stock which, feeding on his pastures, will enrich them most. There is, perhaps, not much practical difference in the amount of manure made by various animals on the same pasture; but the form in which it is deposited, and the habits of stock in choosing their resting places ought to be well considered. Horses are the very worst fertilizers of pasture; they are very close feeders, and they delight to graze the summits of knolls, and all spots where the herbage is short and sweet. On such spots they are continually feeding, yet they manure them very little. The observer will find their droppings mostly in rich hollows, places where the herbage is rank and coarse, showing that the soil is already fertile above the average of the field. In this respect cattle have not the same instinct as the horse, and they are neither so close nor so dainty feeders, but the objection holds against them, as the horse, that their manure is not scattered sufficiently for the good of the land. This is, indeed, the chief objection to employing horses or cattle to enrich land by pasturing. If the grass is turned into hay and fed to them in the yard or stable, the manure therefrom may all be saved and applied judiciously. But this course involves much labor. In the field every observant farmer knows that the droppings of horses and cattle seem to fertilize the soil but little when their bulk is considered, and the best effects are invariably seen not from the solid but from the liquid manures that fall on the field. In pasturing cattle and horses, we conclude that not more than one part in a hundred receives any manure, while the ninety-nine other parts are impoverished as much as though the grass were cut and removed in the form of hay.

Without doubt sheep are the very best stock with which to enrich land by pasturing. They range over the whole field and refuse hardly anything. Their manure is scattered in the very best form it could be applied as a top-dressing. If they frequent the knolls where the grass is sweet they also enrich them, and they choose for their resting places at night, and therefore fertilize, the highest part of the field. In hot weather they will frequent the shade trees, but from such places the accumulated manure is easily scraped up and distributed to other parts. And the farmer who is mainly a grain grower will find no stock more profitable and convenient for all his purposes than sheep.—*Exchange.*

Prof. Mapes' High Pressure Farming.

The agricultural editor of the New York Times, having recently visited the Fruit and Vegetable Farm in New Jersey, of the late Professor Mapes, gives the following account of the sub-soiling, manuring, &c., which he found as practised there by Mr. Quinn, a faithful disciple of the Professor:

The person who is familiar with different kinds of soil, who has followed the plow and wielded the spade for thirty years, where the land is heavy and the hard pan extends to the second rail of the fence, is prepared to appreciate the eminent advantages of the sub-soil plow in deepening the seed-bed for any kind of plants, and in effecting that complete and thorough pulverization which is essential to the production of remunerating crops of cereals, grain, roots, grass, small fruits or fruit trees. The sub-soil plow has wrought wonders on that farm. A comparison of its condition previous to being sub-soiled, with its present fertile and productive state, is exceedingly wonderful. Mr. Quinn assured us that when they commenced operation on that soil its greatest maximum yield of oats was only seven bushels per acre! Judging from my own land of a similar character when seventy bushels of superior oats grew on an acre, and from the fields of some other farmers, where the yield was ninety to one hundred bushels of good oats per acre, I have no hesitation in saying that any of the fields that have been renovated by Mr. Quinn's system of management by use of the sub-soil plough and manure—will produce from ninety to one hundred bushels of the first quality of oats, and crops of other cereal grain in the same proportion. The entire soil is a seed-bed for fifteen to eighteen inches deep. Mr. Quinn examined it in places with a spading fork, and no hard pan, nor unbroken bars or ridges of sub-soil were found. The entire ground was cleared of thousands of loads of stones; old, unsightly stone walls, in some instances nearly one rod wide, were removed; hedges of briars and bushes and noxious weeds were cut up, and the roots ripped up by the plow, and a system of most thorough extermination and complete pulverization was at once inaugurated. Wherever the natural drainage was not complete, under drains were made at once, so that no disfiguring blotches of wet swales were left unplowed, as is the usual custom on many good grain farms. An untold amount of hard work had to be performed which does not show advantageously to people who have not been operators in carrying out similar improvements. A farmer may bury a thousand

dollars in ditching a few acres of land, and in sub-soiling and renovating it; and those who have no faith in the soil—who have no confidence in sub-soil plowing—who think it don't pay to manure land—will never perceive how the proprietor is ever going to receive an equivalent for the labor and toil and money expended in improving the productiveness of the soil for any kind of crops or fruit. There are three things which have made that farm what it now is for productiveness, which are drainage, thorough pulverization and manuring; and these three things lie at the very foundation of all improved agriculture. It is almost an endless task to take such a farm as that was and make it what it now is. Yet such an enterprise always has paid well, and ever will pay when intelligently conducted, although it is attended with far greater difficulty to render some soils more productive, than others. No farmer can ever expect to have his labors crowned with satisfactory success who does not begin right. A man may plow and manure and pulverize and cultivate till his hair is gray with old age, and never be able to make farming, or gardening, or fruit-growing pay, if he neglects to relieve the ground of the excessive moisture which is injurious to vegetation.

"The sources of barn-yard manure have been quite limited on that farm, as only a small number of animals was kept to make manure. But more or less barn-yard manure was purchased from year to year, at the stables in Newark, and super-phosphate has been employed with excellent results, about 400 pounds being sufficient for an acre. Beside these fertilizers, lime has been used occasionally, and Squankum marl, which supplies a large amount of potash to the soil. The land has been 'under the plow' every season; and yet, with what plowing, harrowing, pulverization and manuring the soil has received, its productiveness was increased gradually, from year to year. A liberal equivalent was returned to every field for the crops removed. All the crops and fruit trees assured the beholder that the soil had received superior cultivation, and that hereafter, the proprietor will receive a liberal remuneration for the labor expended in years past.

"The kinds of crops on the ground consisted of a field of Indian corn, a field of some five or six acres of superior cabbage, potatoes, carrots, pie-plant and fruit trees. The potatoes appeared exceedingly thrifty, and would yield, no doubt, two hundred bushels per acre. Not a weed could be seen among the tops, which covered the entire ground, although the rows were three and a half feet apart one way and three feet the

other, with level cultivation. Carrots were very fine, and the great bulk of the cultivation of root crops is performed with a root cleaner and Knox's horse-hoe, either which will do the work of twenty men with hand-hoes.

"There are now about five thousand choice pear trees on the place, a portion being dwarfs in full bearing, some having on, when we saw them, not less than \$10 worth of pears each. Mr. Quinn sold from four Bartlett trees, the present season \$100 worth of large, nice Bartlett pears. The varieties most esteemed, and which have succeed satisfactorily in that locality, are the Bartlett, Duchess d'Angouleme, Sheldon, Beurre d'Anjou and the Lawrence. Almost all the trees appeared exceedingly healthy, and were growing luxuriantly. In many instances the branches had grown upward and laterally, the present season, over four feet. The distance apart for planting the pear trees is eight by ten feet for dwarfs, and twelve by fifteen for standards. Many of the dwarfs were here being trained into standards. The entire ground is kept as clean as a summer fallow among and beneath the trees, with the horse-hoe and handhoes. In some parts of the pear orchard, salt hay had been spread over all the ground, about two inches thick, which had saved the work required in cultivating and hoeing, had kept down most effectually all weeds and grass, kept the soil moist and mellow, so that the trees grew more rapidly than by any other system of management, and the salt hay forms a soft bed for the fruit to fall on.

"As the growth of the young trees is considered of far more value than the small quantity of fruit that a young tree can bear, almost every specimen of the fruit is removed early in the season, for the purpose of encouraging as large a growth of branches as is practicable. The trees were transplanted with extraordinary care. After the sub-soil plow had performed its accustomed task of breaking up the hard substratum all over the field, large holes were excavated where each tree was to stand, and rich soil and fertilizing matter were placed in the holes, and the roots of the trees all spread out with much care, so that there could be nothing to hinder a luxuriant and healthy growth.

"Between the rows of pear trees on one and a quarter acres rhubarb has been cultivated; and Mr. Quinn assured us that he had sold, the past season, rhubarb from that small plot amounting to \$422.46 net profit; and, what was remarkable, the trees in that part of the pear orchard appeared healthy, and had attained as large growth, as in any other place where no crops

had been cultivated. In some parts of the orchard currant bushes are cultivated between the rows of trees. As soon as it is apparent that the space is required by the pear trees, the currant bushes are removed. One acre of the pear orchard was occupied with currant bushes between the rows; and from the bushes on that one acre the currants sold for \$289.73 net profit the past season. In one or two years longer the pear trees will require all the space, when currant bushes must either grow in the shade or be removed.

"Some portions of the orchard are occupied with strawberry beds, and others with blackberry bushes. A small portion of the orchard is devoted to peach trees, and although the trees were thrifty and healthy, no fruit had appeared on the branches the present season, as the severe winter had destroyed the vitality of the buds.

"Mr. Quinn keeps an accurate account of all the farming operations, so that the end of each year he is able to determine at a glance whether farming has been progressive or retrogressive, and whether more money has been expended in the production of a given crop than it will command in the market. His books show that the receipts for the products of the farm vary from year to year. In 1865 the total receipts amounted to \$9,004.53 on that small farm.

"We might extend these notes much further; but what we have recorded will be amply sufficient, we trust, to establish one point, which is, that farming can be made to pay, when farmers begin right and manage judiciously. Success always depends on the right sort of management. A bad manager and poor cultivator will always fail even on good farm. But a good farmer will grow rich on a barren soil."

A Vegetable Garden.

It has been said that a farmer's family may get a great part of their living from the garden and the pork barrel, and such is the case. It is also a fact that the produce of the garden will help to fill the pork barrel, for beets and cabbages, parsnips, carrots and turnips, etc., make excellent food for pigs, and with sour milk from the dairy, these vegetables may be turned to very profitable account.

Every farmer should set apart a small field near the homestead for the production of vegetables. In this field, which should consist of from three to five acres, parsnips, carrots, beets, rutabagas, etc., can be raised in drills and tilled by horse labor. All the produce of this field that is not needed in the house will be exceed-

ingly useful for hogs and cattle. Cabbages should be raised extensively on every farm, when properly managed they produce enormously, and are excellent food for milch cows in the fall when grass is scarce. Pigs thrive well on cabbages chopped fine and mixed with milk. Parsnips and carrots are nutritious food for cattle or hogs.

In this vegetable garden a rotation might be established in which red clover and rye for soilings should form a part, also early corn. Managed in this way only a portion of the field would require manure every year, and even this part might be enriched by liquid manure, soot, ashes, bones and other manurial substances which are suffered to go to waste about the homestead. The refuse vegetable matter from the garden will make a very important addition to the manure heap.—*Western Rural.*

Planting Orchards and Fruit Gardens.

The increasing demand for every kind of fruit is encouraging many persons to lay out and plant new orchards and fruit gardens. In the vicinity of large cities the raising of small fruits has been found very profitable, as berries of all kinds have been in great demand for the last few years, and as raspberries, blackberries, gooseberries, currants, etc., come into bearing in a very short time after planting, there can be no objection on account of the length of time that these fruits take before they make any return for the outlay.

Persons who plant orchards and fruit gardens now, have many advantages which the pioneers of horticulture were not favored with. The experience of several years has pointed out the varieties of fruit best suited to various localities, and improved varieties have been introduced which are greatly superior to the old.

We sometimes hear a man object to planting orchards or gardens because the prime of his life is past, and he thinks he may not live to eat the fruit of his labor. The rapidity with which currants, gooseberries, raspberries, grape vines, and dwarf pears come into bearing, should completely upset these objections. The strawberry, raspberry and blackberry yield some fruit the first year after being planted, and a full crop the second year. The Concord grape vine bears well the third year, and dwarf pears sometimes bear a fair crop the fourth year from planting. It is a good plan to plant standard Bartletts, Seckels and Louise Bonne de Jersey, among the dwarf pears, as they will be about coming into bearing when the dwarf varieties have declined.—*Western Rural.*

The American Farmer.

Baltimore, April 1, 1867.

TERMS OF THE AMERICAN FARMER.

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MARYLAND AGRICULTURAL COLLEGE.—Communications on College business should be addressed hereafter to N. B. Worthington, Registrar, Hyattsville P. O., Md.

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MARYLAND STATE AGRICULTURAL AND MECHANICAL SOCIETY.—It gives us great pleasure to be able to say that the Legislature has passed the bill chartering this society, and appropriating for the purchase of grounds for its use, twenty-five thousand dollars. The law places this fund in the hands of trustees, to be held for the benefit of the association.

•••

ILLINOIS AGRICULTURAL COLLEGE.—The Legislature of Illinois has located the State Agricultural University in Champaign county. It is stated that four competing counties offered from \$350,000 to \$450,000, for the advantage of having it located within their limits.

•••

MAINE AGRICULTURAL COLLEGE.—Hon. Phineas Barnes, of Portland, has been elected President of this institution, at a salary of \$3,000. Mr. Frederick Law Olmsted, Landscape Architect, of New York, makes to the Board a report on the location of buildings and improvement of the grounds.

•••

“A correspondent wants to know how to destroy sassafras; and some one advises to pasture sheep; but cattle are better, because they can reach higher, and therefore save you the trouble of cutting down the shrubs. Will some one please inform me how to destroy persimmon?”

J. A. R.

CONDITION OF THE SOUTH.—We are indebted to B. M. Rhodes & Co., for pamphlet containing a communication of T. C. Peters, Esq., of this State, formerly of New York, addressed to Gen. Grant, on “*The Condition of the South with regard to its needs for a Cotton Crop, and its Financial wants in connection therewith, as well as the Safety of Temporary Loans.*”

Mr. Peters, in a recent tour, passed through Virginia, North Carolina, South Carolina, and Georgia, visiting the commercial and business centres of those States. He undertakes, from what he saw, to refute the persistent lies which have been so industriously and malignantly circulated as to the security of person and property in the South, maintains that labour is abundant, and urges that the great need of the Southern people is money, to pay wages, and furnish provisions, and that the security which can be given to capitalists for advances is perfectly safe and reliable. The purpose of Mr. P. is very praiseworthy, and we trust his publication may effect some of the good he proposes.

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AGRICULTURE OF MAINE.—S. L. Goodale, Esq., Secretary of the Maine Board of Agriculture, has favoured us with six volumes of his very valuable Reports, running from 1860 to the present time. We find in them a great deal of excellent matter, most creditable to the State and her able Secretary of Agriculture. When will our State have such a Secretary, and furnish such an annual report?

•••

Hungarian Grass and Grasshoppers.

J. M. Miller, in *Kansas Farmer*, says that Hungarian grass grows in favor with stock raisers every year. One of his neighbors sowed a few acres on fresh broken sod, and reports that he got three tons to the acre of splendid hay. A great advantage of this kind of provender is, that it may be sown as late as the first of July, and make a crop. The grasshoppers being expected to come again in Kansas, and destroy “every green thing,” the writer says, “I am going ahead, and if they eat up my corn, rye, wheat, oats, &c., and then go away, which is the general opinion, I am going to sow my land all to Hungarian grass, and at least have plenty of feed.”

The Hungarian grass and other millets are exhausting crops, and prosper in any rich, dry soil. They come off the ground in time for fall grain, which may be put in with the drill without further ploughing.

The Agricultural College.

The Maryland Agricultural College opens its new session, which was announced last month in our advertising pages, under better auspices than have ever favored it before. It has a property valued at about a hundred thousand dollars, with all claims against it provided for, and has had appropriated to its use the income to arise from the sale of two hundred and ten thousand acres of public lands; in accepting which endowment the State of Maryland pledges itself to maintain the College, by such support as may be needful for its legitimate ends. The property of the College is a farm of two hundred and eighty-three acres, with a very commodious and substantial farm house and servants' houses, of brick, a comfortable house, in modern style, for the President, and the College building, of four stories above the basement, a hundred and fifty feet in length, and fifty in width, with very superior sleeping apartments for a hundred and fifty persons, spacious lecture rooms, and the necessary housekeeping accommodations. A very substantial and valuable stone barn, containing nearly all the crops of the season, was destroyed by fire sometime since. This serious loss, and the destruction about the same time of a large portion of the fencing by the army of General Burnside encamping on the farm, has tended greatly to embarrass the farming operations. This barn, it is to be presumed, will be now replaced by a new one of modern architecture, and the farm put at once into such condition, and provided with such equipments, as may adapt it to its proper purposes.

With the improvement effected in its fiscal affairs, and the ability to make changes and amendments, the necessity for which has been seen and felt continually, there is added now the experience of the past to remedy the defects of past management, and suggest improvements. The difficulties hitherto encountered, have been such as are incident to new enterprises, and do not present any unsurmountable obstacle to full success.

THE TEACHINGS OF THE COLLEGE.

It seems to us that, in entering on its new career, it should be more distinctly and generally made known that in the first place it is not a school of agriculture only, as our medical and law schools are of those professions, nor is it, in the second place, modelled after the old fashioned schools of learning, which Princeton and Yale, and our own St. John's and Washington Colleges have followed. These latter answer all the purposes of training for what are commonly called "the learned professions," but there is a grow-

ing demand and urgent necessity for schools of science, and of science in its applications to the industrial pursuits. Agriculturists, machinists, engineers, &c., need instruction and training in their specialities for which they cannot afford the time and means, after the period of an ordinary educational course, yet a course of liberal education is more and more demanded by those very classes. They need to be instructed in those branches of learning which every educated man must master—in all that pertains to the training of the man and the citizen. It is the problem of the day to associate, in the same institution, what is strictly necessary to a course of liberal education, with such special scientific instruction as will educate the pupil in the principles of whatsoever industry he may design to pursue, *and in their application*. The Maryland College, to our mind, is designed to be such an institution. It has thus far, prudently, perhaps, perhaps too prudently, adhered to the system of the old schools, in presenting a full classical course, but it must become a school of applied science; first of agriculture, as the great leading industry; then of the mechanic arts, then of military science—for all these are demanded by the terms of the law which maintains it—and it is manifest that as it develops these departments, it must dispense with the unending demands of the ancient classics, and such sciences as have no direct bearing on industrial pursuits.

In pursuance of these views, not expecting in the beginning, all that we hope, and may, we think, reasonably anticipate of future development, there is an immediate, imperative demand upon the Trustees of the College to get into active, effective, working order, all that belongs to its leading characteristic, its agricultural department. We know how the burden of an unbearable debt, and the casualties above mentioned, have combined with other causes to repress the best intentions in this direction heretofore; but, we know too, that the community outside has not understood or appreciated these obstacles, and that a reproach has attached to the management of the Institution in this regard, which it can only get rid of by the most vigorous and prompt measures, to put the farm into such condition, and to furnish it with such stock, and implements, and needful appointments, as become the character of the Institution, and will make it the means of instruction in the improved practice of the day, and in the application of the principles of science, which should be taught as well by lectures in the field, as by instruction in the recitation room. We believe the Managers are as much impressed with this necessity as we

are, and we hope to see soon the result of their convictions on this important point.

To the specialty of agricultural teaching, pertain the sciences of chemistry, geology, mineralogy, botany, zoology, meteorology, &c. The principles of architecture, and mechanics, and engineering, and their application to every description of farm building and farm implement, and the making of roads, bridges, embankments, drains, &c. These, and others, which we now overlook, must come necessarily, to greater or less extent, into an agricultural course, connected with practical instruction in the various processes which enter into the daily working of the farm crops, as ploughing, harrowing, seeding, harvesting, the care of the manure-heaps, rotation of crops, management of pasture and meadow, the dairy, the breeding and feeding of stock, &c., &c. Horticulture and fruit culture, and the knowledge and culture of flowers even, should be embraced in the practical course.

With this, the agricultural student should combine the usual mathematical course, one or more foreign languages, a thorough study of his mother-tongue, the English language, and familiarity with its literature, rhetoric, logic, mental and moral philosophy, history, and the philosophy of history. Such a course may satisfy even the ambitious student, and, well mastered, should entitle him to the highest honors of the Institution.

For the present, any course of study which the student may prefer is open to him, but it should be well understood, that the College is to be rather a school of science than of classical learning, and of science especially in its applications, first to agriculture, and then to the mechanic arts.

— A subscriber at Milton, N. C., writes as follows: "Your number of October, 1866, contained an article upon the "Arrangement of Fields." Your four field system begins with corn; this is succeeded by wheat. The third year of the rotation, the clover sown the year previous attains perfection in June, and in August the field is turned for the great crop—wheat on clover fallow; which crop closes the rotation. It is sown without grass seeds, and the following year the corn crop comes in again. This system is impracticable here, as we are too busy in the fall with tobacco to remove corn stalks and prepare for wheat. As to fallowing and harvesting, plenty of team and a reaper overrides these difficulties. Could the system be changed, and clover do as well, or do at all, in the following:

First, corn; the following spring, oats and clover, &c.?

Reply—There being no difference between the rotation alluded to by our correspondent, and that he proposes, except that he sows oats in spring instead of wheat in fall, all that need be said is, wheat is usually a better crop to sow grass seeds with than oats, and therefore to be preferred, especially where there is difficulty in getting a "set." Soil and climate favoring, clover grows well with oats. [ED.]

Catalogues, &c., Received.

Edw. J. Evans & Co., York, Penna. Fruit and Ornamental Trees, Strawberry Plants, Bulbs, Grape Vines, Field and Garden Seeds, Seedling Potatoes, &c.

Ellwanger & Barry, Rochester, N. Y. Ornamental Trees, Shrubs, Roses and Flowering Plants; Fruits, Green and Hot House Plants.

W. S. Little, Rochester, N. Y. Trees, Fruits, Vines and Flowers.

Jas. Vick, Rochester, N. Y. Hardy Bulbs and Floral Guide.

J. B. Cline, Rochester, N. Y. Fruits, Flowers and Ornamental Trees.

Holton & Zundell, Haverstraw, N. Y. Grape Vines.

B. M. Watson, Plymouth, Mass. Field, Garden, Tree and Flower Seeds.

Theo. Ch. Wendell, Boston, Mass. Flower and Garden Seeds.

W. D. Strowger & Co., Oswego, N. Y. Trees, Shrubs and Plants—illustrated.

R. H. Allen & Co., New York City. Implements, Seeds and Trees.

Sheppard & Co., New York City. American and Imported Seeds.

John S. Collins, Moorestown, N. J. Strawberries, Raspberries, Blackberries, Vines and Small Fruits.

Thos. C. Andrews, Moorestown, N. J. Strawberries, Raspberries, Blackberries, Vines and Small Fruits.

Randolph Peters, Newark, Del. Trees, Fruits, Plants, &c.

R. Sinclair & Co., Baltimore. Implements, Machinery, Tools, Seeds, Trees, Plants, &c.

Wm. Corse & Son, Baltimore. Trees, Fruits, Vines, Plants and Seeds.

Richard Cronwell, Baltimore. Implements, Machines, Tools, Trees, Fruits, Seeds, Plants, &c.

John Saul, Washington, D. C. Trees, New, rare and beautiful Plants, Evergreens, Seeds, &c.

N. P. Boyer & Co., Gum Tree P. O., Chester Co., Penna. Hog Breeder's Manual.

W. A. Flanders & Co., Shelby, Ohio. Italian Bees.

For the "American Farmer."

Large vs. Small Farms—Economy of Associated Capital and Labor.

CHARLES COUNTY VA.,

March 15th, 1867.

Messrs. Editors:

Your correspondent, H. H., of Augusta, Georgia, has made some valuable suggestions in relation to the rehabilitation of the South, and I am happy to see that you are directing the attention of your correspondents to this important subject. I hope you will hold it up before them until the proper solution of this difficult problem has been reached.

The same general principles apply to agriculture, which control any other business; that is to say, that the size of a man's farm, and the number of acres cultivated, must depend mainly upon the amount of capital at his command. The capitalist, with his thousands, can as easily cultivate his hundreds of acres as the poor man his small patch. But the question is, which can be most profitably tilled, the large or the small farm, where the capital is adequate in each case? Of course there are many modifying circumstances, such as location, market facilities, character of crop, soil, labor, &c., which might vary the rule in each case, and of which the practical business man would speedily avail himself. But let the question be discussed with reference to the great planting interest of the South, cotton, tobacco, sugar and rice, for it is to these that we must look for the restoration of our section to prosperity once more. I affirm that if the experience of the last fifty years has developed any truth, it is that all great enterprises must be accomplished by "associated capital and associated labor." It is no less true in agriculture than in commerce and manufactures. The expenses decrease, and the profits increase, with the augmenting capital and labor, until you reach a certain maximum. This maximum is varied by every variety of circumstance; nevertheless the law is the same. Let every practical planter look to the cotton, rice and sugar plantations of the South, as conducted before the introduction of the steam engine to the gin house, the sugar mill, and the rice mill, the change wrought thereby, and no further proof or illustration will be needed to establish this fact. I admit that free labor is not so easily associated as slave, but free capital is more so. The capital of the country is no longer locked up in the labor of the country. The disenthralment of capital is some compensation for the loss sustained by emancipation. But the real, pressing want of the

South, at this time, is not labor, or the ability to control it, but *capital* to command it. Capital always has, and always will, both command and control labor; but the capital we have not. There is no accumulated capital in the South; the fruit of two centuries' toil was swept away by four years of war. We have nothing left now but real estate—land—and the question is, how shall this be made available? The universal answer has been: "You must sell your surplus land, reduce the size of your farms, thereby securing the capital to cultivate the remainder." Moreover it is affirmed that this is the inevitable tendency of free society. It may be the case where a dense population exists, under democratic institutions; but we have none of those things in the South—the reverse, a sparse population and a military despotism. Moreover it is folly to speak of cutting off our lands, those fine old patrimonial homesteads, and selling off the surplus, for if those who own land—the only property left in the South—can't hold it and cultivate it, how can those buy who have *nothing* left? Everybody, except the land-holder, was swept clean by the war, nor have the few exceptions to the rule, any disposition to profit by the sad experience of their friends. Everybody wants to go to the towns and villages and live by their wits; nobody wants to eat their bread in the sweat of their brow. Yet the only lands which have been sold in the South since the war, have been sold to Southern people. The unsettled condition of things, growing out of the emancipation of the slaves, and the unfriendly legislation of the Federal government, discriminating against Southern products, has kept out immigration, has kept out capital; nor can it be induced while this condition of things continues. For one, I do not wish to see foreign immigration. I fear it may prove an addition to our already overgrown pauper population, and fuel to the flame of fanaticism, which is now scourging us. If we can get skilled mechanics, and men with capital, who can buy our lands, and add mechanical skill and enterprise to the country, I shall gladly receive them; but these are too smart to come here under the present condition of things. Then what shall we do? Why, rely upon our own brave hearts and strong arms, as a gallant and chivalrous people should. Let us realize the fact that we are miserably poor, and at once adapt our style of living and business to our circumstances. Whatever Congress may do there is no escape from the galling yoke of poverty, and when this fact is recognized, and fully realized, there will be less difficulty in knowing what and how to do. Then I say to

alleviate as much as possible the sufferings and afflictions of our bankrupt and broken hearted people, let us form associations of capital, associations of skill, associations of land, associations of labor, and associations of all combined. There has always been too much individuality in the South.

MOSING FORD.

For the "American Farmer."

Mississippi Grape Vine.

GENTLEMEN : In your November number I noticed an article describing the wonderful grape vine of Santa Barbara. I will give you now a history and description of a wonderful grape vine of Mississippi on the farm of Mr. William Moore, of Atala county of this State, a small planter, a good citizen, and every way reliable. His place is situated about twelve miles from the geographical centre of the State, as laid down on "Daniel's Masonic Map of the State of Mississippi." The greater portion of the surrounding country is broken and hilly; soil light, mixed with sand, and clay foundation. Mr. Moore has but one vine or plant. It is now thirty-four years old, began bearing at three years old, and was planted in his yard for ornamental purposes alone; has never been pruned, or cultivated in any manner, and never failed to make a tolerable crop any year. Mr. Moore assures me that he makes from fifty to one hundred gallons of good wine annually, without machinery. His plan is primitive and simple. This vine has run and spread until it covers about one-quarter of an acre of land; the only attention it requires or gets is props or forks to bear up the still extending branches. When the fruit begins to ripen, he spreads beneath a sheet, and gently shakes the vine, and the ripe fruit falls. It is then put into a common wash tub and mashed with a wooden pestle made out of a sapling taken from the forest green, and squeezed or pressed in some common home-made cloth. The balance of the operation to make wine of the same sort. As the grapes ripen he pursues the same routine. The quantity made depends on the time he can spare from his crop. His neighbors have free access to this wine. With him wine making is only secondary, and when he has nothing else to do. Now, gentlemen, you would be astonished on tasting this wine. The flavor is fine, rich and pure. I know that the general impression is, that wine made in the back woods in so common a way must be only stuff. It is stuff sure enough, and if I can get conveyance I will send you a bottle, so that you may judge for yourselves. Without any aid, in its pure and natural state, I think it is the strongest wine made. We make a good

deal of wine from the wild grape of the forest, which is all very strong. This grape is the Scuppernong, and for the information of others, as to the value of this variety to the South, I refer them to an article in your October number over the signature of J. Van Buren. This gentleman understands the great value of this grape to the South. I think, gentlemen, the Mississippi grape beats the Santa Barbara vine, and should satisfy us that we need not send to foreign countries for our wines.

MISSISSIPPI.

Kosciusko, Miss., March 3, 1867.

TIMBER AND RAINFALL.—According to Rentzsch, a German authority, the proportion of forest or woodland required for an agricultural country, in order to secure it a regular and sufficient rainfall without violent storms, is twenty-three per cent. in interior regions, and twenty per cent. near the coasts. This estimate relates to Germany. The same writer estimates that five per cent. of timber is sufficient for England. An English authority, Sir Henry James, regards this last estimate too high for England, deeming 2.5 per cent. of timber sufficient. It is probable that the percentage of timber required in Germany is less than would be necessary in the level regions of our own section, as mountains exert an important influence upon the amount of rainfall.

The following interesting account of the influence of timber upon rainfall and springs is taken from Boussingault's *Rural Economy*:

"The Wolf-spring in the Commune of Soubey, France, furnishes a remarkable instance of the influence of woods upon fountains. A few years ago this spring did not exist. At the place where it now rises, a small thread of water was observed, after very long rains, but the stream disappeared with the rain. The spot is in the middle of a very steep pasture, inclining to the south. Eighty years ago the owner of the land, perceiving that some firs were shooting up in the upper part of it, determined to let them grow, and they soon formed a flourishing grove. As soon as they were well grown, a fine spring appeared in place of the occasional rill, and furnished abundant water in the longest drought. For forty or fifty years this spring was considered the best in Clos-du-Doubs. A few years since, the grove was felled, and the ground turned again to a pasture. The spring disappeared with the wood, and is now as dry as it was ninety years ago."

Feed your poultry raw onions chopped fine mixed with other food, about twice a week. It is better than a dozen cures for chicken cholera.

A French Statesman Feeds Chickens.

The distinguished diplomatist and statesman of France, Mons. Drouyn de Lhuys, who is looked upon in that country as the head of the diplomatic profession, having successfully filled every grade in it, from that of mere attache, and like the great Cardinal, "sounded all the depths and shoals of honor," has not "fallen from his high estate," but has betaken himself to a farm, and feeds chickens. The following account of a visit to him by an acquaintance, is extracted from an article which was translated from *Le Figaro* for the *Richmond Eclectic*.

"Mons. Drouyn de Lhuys quitted the Foreign office in the month of May, 1855. As I owed to him my first appointment and subsequent promotion, I thought it my duty to take advantage of his retirement from office to present him my thanks. He was then living in a small country house, on the banks of the Bievre, in the hamlet called Amblainvilliers. I took the Orsay railway for Calaisseau station. Half an hour afterwards I rang the bell at a modest iron gate. A servant opened it, and I saw Mons. Drouyn de Lhuys some twenty paces distant in the garden. I had never seen him before, except in the State drawing-room of the Ministry of the Boulevard des Capucines or at some Foreign Ambassador's or Minister's. You remember his aristocratic air, his distinguished bearing, his elegant carriage? I saw before me at Amblainvilliers an excellent country landlord, wearing a broad-brimmed flexible hat, a coarse frock coat, pantaloons rolled above the ankle, for the ground was muddy, and holding in one hand an earthenware dish full of dough, which he distributed to young chickens, crying "chick! chick! chick! here chick!" in a voice which a Norman farmer's wife would have envied. I dared not advance, for I was afraid of being indiscreet in surprising him amid his rustic occupations. But he saw me, and it seems to me I still have before me his courteous, frank smile, as he came forward to meet me, with his earthenware dish in his hands, and followed by all his chickens.

"He said, 'Ah! good day, dear sir! How kind it is in you to remember a peasant of the Bievre. Pardon me if I do not hold out to you my hand in its present condition; but if you will be good enough to go into the drawing room, I will join you there—unless you prefer waiting with me until I feed this little family.'

"You may easily believe I stayed. There was among the poultry a little cock, which seized with avidity the biggest pieces; but he did not eat them; he carried them first to one and then to another hen. This sight interested Mons.

Drouyn de Lhuys. He repeatedly said to me: 'Just see how kind-hearted and generous that little cock is!'

"All this time I gazed on the man who, a few months previously, held in his hands the whole Eastern question, who had so ably prepared the treaty about to be signed, who had left at London, Vienna, St. Petersburg, such brilliant souvenirs, so great a reputation for honesty and skill, and who there stood gravely and seriously amusing himself feeding chickens.

"My astonishment was not less great when, thirty minutes afterwards, a cart—a real country cart—drawn by a little white horse, drove up in front of the door, and a young woman nimbly leaped out of it. She wore a calico dress and a broad straw bonnet. This young woman was one of those whose grace and elegance have been oftenest and most justly celebrated, whose dresses were instanced as oracles of good taste. She had just returned from visiting a poor woman of the hamlet, and she still wore the wooden clogs in which she had paid the visit. I was confounded by this simplicity."

Hen's Nests.

The nests should be on the ground—if possible, on the earth—and not in the same place where laying hens have access to them. An exception must be made to the ground, if farmers set eggs while hard frost is still in the earth. In this case you must be more careful not to forget to moisten the eggs with water when the hens come off to feed. I prefer in cold weather to lift the hen off, wet the eggs, and put her on again. There is less risk of a chill. Many complaints are made of eggs not hatching, though there are birds in each. This is entirely caused by their being too dry. Unless moistened, the inner membrane of the egg becomes so hard and dry that the chick cannot break through. This is especially the case with the Cochins, and I have often had to hatch half the eggs myself (by breaking the shell with my finger, not by sitting *a la poule*) and let them out.

When a hen steals her nest, she goes out early in the morning for food, before the dew is off the grass, and returns with wet feathers; so that by damping the eggs we imitate this natural process. The eggs of ducks and geese will still more require this attention.

I have found the most convenient way to set hens was to get a common tea-chest or box, put a portable sloping roof to it, made of a few pieces of board. Cut a hole at one end, like that for a dog-kennel. In front of this put a wire pen or a frame made of lathes. Provide the hen with

food and water daily, and you need not be under any anxiety about your hen leaving her eggs; she cannot get out, and will return on the eggs, if really broody, in a very short time. In this way you would have them entirely under your command. When the chickens are hatched, I find these same boxes answer every purpose; only in wet weather, if a shed cannot be had, they must have the frame covered with canvass or boards.—*Col. Hassard's address before Canada Poultry Association.*

Broom Corn.

On the rich alluvial bottoms of the Mohawk river, in New York, and other similar localities, broom corn is very extensively and profitably grown. It has never received much attention as a market crop in Missouri. During the past year several large crops were grown, and recently there has been much inquiry for information in regard to this crop.

Our deep, rich, river bottom lands cannot be excelled for the purpose of broom corn culture. Any of our moderately rich soils will produce very profitable crops of it. It will pay well to grow broom corn for the brush alone, at present prices, much better than corn or wheat. In addition, it will yield fully seventy-five bushels of seed to the acre on good land, which is generally considered quite as valuable as oats for feeding to stock.

According to the census returns of Massachusetts for the year 1865, in one county of that State, where broom corn is most largely grown, there was an average yield in value per acre of a few cents less than one hundred and fifty dollars. In such localities as the Mohawk valley, or our river bottoms, the result would probably be much greater.

Mr. M. A. Kitchen, of Harrisonville, Cass county, Missouri, raised a crop of broom corn the past year, and writes as follows in regard to it: "Of the broom corn have had a fair crop. My ground was deep and well ploughed. My corn was planted three and a half feet by twenty-one inches. I plowed it all one way. I dropped the seed by hand and covered it the same way. There was nothing peculiar about the cultivation of the corn, more than it was well done.

"In growing, the corn, or rather the seed, was allowed to get fully ripe. The brush is now a bright color, quite green, and very tough. In gathering my corn, I broke it down in tables, two rows together, one across the other, one man breaking something over an acre a day. After cutting, and as being cut, it was laid on the ta-

bles to cure. As soon as cured and dry, and before rain, it was hauled and put under a shed, with the seed on the brush, and there it remains to some extent wet, perfectly cured, and in fine condition. I feed the seed to my stock, and remove it from the brush as I need it for use. I have fed my work horses on no other grain for the last three months. My cows and hogs are all fed on it, and are all fat. I do not know just how much brush I had to the acre; I think, nearly half a ton. The yield of seed is near seventy-five bushels to the acre, and, according to my experience, it is worth as much as oats, in measure, for feeding to stock.

"The yield of brush per acre, varies according to soil and season, from three hundred pounds to one thousand pounds per acre. When well ripened, the seed will average three or four pounds for every pound of brush. It weighs about fifty pounds per bushel, and sometimes a yield of one hundred and fifty bushels per acre has been obtained."—*Farmers' Advertiser.*

BED YOUR STABLES.—A horse, remarks the *Rural World*, will get tired of standing and treading on a hard floor; so will a cow, a sheep, a man. A soft bed feels easy—gives rest. And yet we neglect the bedding of our stables to a great extent. Injured limbs and other ailments, especially of the hoof, are the result often of a neglect here, as has been clearly enough shown, and as any man can clearly enough see, if he gives the subject moment's thought. Bed with straw, which is plenty, or saw-dust, or tan-bark or shavings. The dryer these materials are the better. Every day remove the moistened bedding, and replace with new. Such a floor, well bedded, adds greatly to the warmth of a stable, and thus becomes a fodder saver. The small holes and crevices in a floor, with a good bedding upon them, will let little or no cold through, and will drain the stable. Rather have a ground floor than hard, naked plank.

A GOOD WORK HORSE.—The California Agricultural Society requires that a first premium work-horse shall be between fifteen and sixteen hands; quick, lively ears; broad between the eyes; round barrel; short loins; well up in the shoulder; deep chested; square quarters; flat legs; short between the knee and pastern, and hock and pastern; hind legs well under him; speed equal to eight miles an hour on the road, and at least three miles at the plough; with sufficient blood to ensure spirit and endurance.

Calves "Brought up by Hand."

A member of the Cirencester Farmers' Club makes a specialty of rearing calves, and has read a paper before that association describing his experience. He has been in the habit of procuring the calves dropped on the farm of a neighbor, and, with only *four cows* of his own, raised fifty calves in 1864, fifty-five in 1865, and, in 1866, fifty-five were weaned, but three have been lost by mismanagement. He takes the calves from about the first of March, when ten days old, paying thirty shillings each for them.

They have for the first three or four days two or three quarts of milk at a meal; then gradually some food in the shape of gruel is added, and, by degrees, water is substituted for milk. Mixing oilcake with gruel is the secret of success. I use half oilcake, the best I can buy. Take a large bucket, capable of holding six gallons, put into it two gallons of scalding water; then add seven pounds of linseed cake, finely ground, which is obtained by collecting the dust that falls through the screen of the crusher, and passing it through one of Turner's mills. Well stir the oilcake and water together, and add two gallons of hay tea.

The hay tea is made by pouring scalding water in the morning on good sweet hay, in a tub, the tea standing covered till night, and having seven pounds of meal (wheat, barley and beans mixed) stirred into a tubfull before use. The same hay will bear a second infusion during the night, for next morning. Two quarts per head, with an equal amount of cold water, is enough for a feed. The old plan of letting them suck through the cowman's fingers is preferred, and, as soon as they can eat, crushed corn, sweet hay and roots are placed within reach; vetches as soon as ready, and mangolds, of which a supply should always be stored if practicable. The calves live in a cool, well ventilated house, are kept very clean and quiet, supplied with fresh water daily, and the manure frequently removed.

Fattening Hogs.

The editor of the Germantown Telegraph having made inquiries of a farmer as to the profitableness of pork raising and the best way to feed hogs, received a reply, the substance of which was:

1. That feeding grain—especially corn—to hogs will pay better than would the same amount fed to any other kind of farm stock. But this is qualified as to the kind or breed of hogs fed and the manner of treating them. The breed should be the "Chester White"—the *nom de plume* of

the writer—and they should be fed in such a manner as to gain a pound a day. In other words the hog, at a year old, should weigh three hundred and sixty-five pounds. Greater weight than this could be produced, but the increase would not pay the extra expense necessary to procure it.

2. One bushel of good shelled corn, made into meal, and fed to the hogs regularly, in such quantity as to prevent them from fretting for more, will produce from five to seven pounds of pork during the months of October and November. After this season of the year more feed is required and less pork produced according to the quantity fed.

3. An important point is to keep the hogs growing all the time—not starving them to mere hog frames, during the summer, and then attempting to finish off quickly on the arrival of cold weather.

4. When put up in the fall—indeed during the entire season—a comfortable shelter should be provided so that the hogs may avail themselves of it whenever a storm occurs, but when the autumnal storms commence, the hogs should be penned for good till ready for slaughter.

5. With the pure "Chester White" stock of hogs, properly brought forward during the spring and summer months, it is safe to feed eighty-five cent corn on a basis of five cents per pound for the animal fed. This feed for October and November should be corn meal, mixed with water to the consistency of a thick slop.—*Rural New Yorker*.

Does the Soil Need Rest?

 Our fathers in Agriculture quite generally held the opinion that summer-fallowing greatly benefitted the soil by the rest it gave. If the land lay utterly idle through all the season of growth, should it not recuperate its powers of production? They believed it would. And this opinion prevails to some extent at the present time among farmers.

But absolute rest obviously adds nothing to the soil; no food for plants descends from the air above or rises from the sub-soil below. No favorable chemical action is known to be induced by exposing a naked soil a long time to the elements; on the contrary it may be apprehended that the washing of the rain, the parching of the sun, the evaporation of the atmosphere, remove some of the volatile substances which are found in a fertile soil. Rest does not impart fertility to the sands of the desert, nor are arable soils in a state of nature where they are increasing

in fertility, ever permitted to be destitute of vegetable covering.

The soil then does not need rest—requires cultivation. By cultivation we mean here those physical changes which may be made. It wants deep and thorough working, so that the roots of plants can reach every particle of soil; it needs draining, to draw off the stagnant water which is poison to the roots of our cereals and cultivated grasses. Deep, thorough, and frequent pulverization of the soil, though it adds nothing to the amount of plant food, will, by making it all available to the crops, cause the land to be very productive. Then, except during the brief period of this thorough working, the soil should be producing, for it is by the sole agency of what grows upon it that the farmer can hope to increase the amount of plant food in his land.

But is not land constantly producing crops, whether of grain or grass, exhausting itself? Yes; if those crops are removed from the soil, and no remuneration made therefor; but if the whole produce of the ground is returned to it the amount of plant food is increased. The soil becomes richer for the reason that the substance of the plant was only partly derived from the soil, but largely from the atmosphere, and while the soil receives again what it gave, through the decomposition of the plant, it has in addition all that was drawn from other sources. This is the reason why the plowing under of clover, or other green crops, for manure, enriches the soil. The crops have drawn only part of their fertilizing components from the soil—they have gathered from the air likewise—and it is precisely this which increases the previous richness of the soil. And if all the manure which crops will make by passing through the animal system be returned to the soil, its fertility will doubtless be maintained; enough will be returned to replace the ash-constituents of the plant, which alone were derived from the earth.

We conclude, then, that the soil does not need rest to render it fertile. It needs cultivation and cropping, not reckless, wasteful, unmethodical farming, but that so planned and executed as to grow large and varied crops, and dispose of them in such manner as to return the extracted elements of fertility to the soil.—*Rural New Yorker.*

OWNERSHIP OF LAND IN GREAT BRITAIN.—Mr. Bright, in one of his late speeches, is reported to have said that one-half of Scotland is owned by twelve persons, and one-half of England by one hundred and fifty.

The Agricultural Report for December.

Taking the estimates given by the Agricultural Department, in the report for November and December, there is every reason to congratulate ourselves upon bountiful harvests. The crops of the past year were ample, and there is nothing discouraging in the future prospect. Notwithstanding the sadly unsettled condition of the eleven Southern States, they have produced a good supply of food. 185,000,000 bushels of corn are placed to their credit, while the yield in the Northern States, exclusive of the Pacific, is estimated at 679,000,000 bushels, and the grain is of an excellent quality. The total amount of corn produced in the United States for 1866, is summed up at 880,000,000 bushels. In the Southern States, activity also has been shown in the cultivation of wheat, as the yield for the year is estimated at 17,000,000 bushels, and the whole quantity grown throughout the United States, is assumed to be 180,000,000 bushels. The potato crop, for the entire country, excluding the Pacific States, is placed at 104,000,000 bushels; the crop for the Southern States, not including sweet potatoes, being 5,884,000 bushels. Notwithstanding that the potato crop was almost a failure, in some sections of the West, the whole amount produced compares favorably with the estimates of other years. In the hay crop we have a marked deficiency, the estimate falling short of 21,000,000 tons, including the eleven Southern States heretofore unreported. For 1865, the estimate exceeded 23,500,000 tons, excluding the Southern States. Though we have less in quantity, the quality is said to be excellent. The tobacco crop is more flattering than has been reported for any year since the commencement of our civil war. This is not surprising, as the plant which constitutes a valuable article of commerce is chiefly grown in the Southern States. The following estimates are given: For Virginia, 95,000,000 pounds; for Tennessee, 40,000,000 pounds; for North Carolina, 30,000,000 pounds, and for Kentucky, 35,000,000 pounds; and the total amount is summed up as 350,000,000 pounds. In regard to the cotton crop the report says:

The estimates of the cotton crop made in our October report, upon data of September 1st, and subsequently modified by local losses, especially in Louisiana, have been fully sustained in most of the cotton States. From the data received in the department, the total estimate, including the little grown in States north of the cotton region proper, cannot be placed below 1,750,000 bales of 400 pounds each. As compared with outside estimates this inclines to lower rather than upper

ranges of figures. Some cotton planters and commission merchants make the total 1,250,000 bales, of 500 pounds each, which is nearer the actual weight of New Orleans bales—a result scarcely less than that arrived at in this department. On the other hand, there are others who assume a total of 2,000,000 bales. Our estimates are not an average of a great many irresponsible guesses of individuals in several States, but the actual footing up of careful county estimates, after close scrutiny and cautious examination. The following are the estimates for the States below mentioned :

North Carolina.....	91,000 bales.
South Carolina.....	102,000 "
Georgia	205,000 "
Florida	36,000 "
Alabama	220,000 "
Mississippi.....	270,000 "
Louisiana	109,000 "
Texas	300,000 "
Arkansas	182,000 "
Tennessee	148,000 "
Other States	1,663,000 "
	87,000 "
Total.....	1,750,000 "

The above figures are very gratifying, as they show that, in spite of a protracted and desolating war and present political excitement, the people are fast returning to agricultural pursuits. The song of the reaper is now heard where once lurked deadly foes, and where the sharp report of the rifle disturbed the calm repose of nature. Though the war encouraged thoughtlessness and habits of idleness, we behold how eagerly labor has been embraced, and, in an imposing array of figures, have the results of frugal industry. This we can only accept as another evidence of the greatness of our people, and the fertile resources of our country. If agitation should cease in political circles, the results would be far more gratifying for the fall of 1867, than they are for 1866.—*Turf, Field and Farm.*

WHEATEN GRITS.—Any one can be supplied with this wholesome and palatable food, by getting good white wheat and washing and thoroughly drying it. Then grind it in a coffee mill, kept for the purpose, setting it to grind as coarse as possible. Place it in a six-quart tin pail, and pour cold water to cover it; set this pail into a kettle containing six or eight inches depth of hot water. Set it to cook for four hours, stirring occasionally, and adding more water as the wheat swells. Before taking up, stir in salt to your taste. Have ready your moulds or dishes, (having first wet them,) and pour the wheat into them. When cool, they should turn out like jelly, and be eaten with cream.—*Country Gentleman.*

Top-Dressing Grass Lands.

By top-dressing grass lands we expect to effect two objects. First, to protect the roots from the effects of atmosphere, to which they are exposed by frost and by drainage of the finer particles of soil, which are too often removed by heavy rains, leaving the roots of grass exposed to the chilling influence of cold winds one day, and perhaps the next subjecting them to the scorching rays of a hot sun.

That such protection is necessary may be clearly seen by walking over the fields in spring after the ground has settled or after heavy rains in any season, for where the ground freezes, it expands. The roots of grass are thrown up by this expansion, and when the frost leaves the ground, the earth by its own weight falls back to its natural position, while the roots of grass, being lighter than the earth, are left too much above it, and are thus exposed. The very nature of the case shows, then, that a protection is necessary in order to secure a fall crop and prolong the life of the exposed plants.

Nature, in top-dressing the fertile intervalle, makes use of the swollen stream to effect her object, and the stream in its course brings down the fine soil from the hillsides, decayed leaves from the forest, and indeed every light material that comes in its course, and spreads them evenly over the lands they are to enrich. So economically is this arrangement carried on, that even the heavy clay, washed from the worn bank, is, by a continued intermingling of the waters, mixed with other material, and turned to a good account in the general deposit. So nature teaches us that we need not depend exclusively on the stable and barn-yard for means of improving our lands, but that we may go into waste places and collect materials which are apparently useless as they lie, and by giving them a proper mixture, make them very available in increasing the fertility of the soil.

Although barn-yard manure may be the best fertilizer for top-dressing, there are few farmers that can afford to take it from other crops to appropriate it in large quantities to this object. The compost heap, if well prepared, will answer nearly as good a purpose, for it will give full protection to grass roots; and though the vegetable food it affords may not show so great an effect on the abundance of the first and second crops, it is not unusual for the good results to show themselves longer. So that in the end the balance of credit will stand in favor of the compost. The material to be used in composting for top-dressing is abundant and within the reach of every farmer, and to say what it is, we can only say

every substance of a decaying or decomposable nature. The compost heap may be composed of all the odds and ends and offal found on or around the farm, and the more these odds and ends are collected and brought into a mass the more valuable it becomes.

From general practice it may very safely be inferred that public opinion is yet divided on the proper time for applying top-dressing, especially to grass lands. Within our memory there was but one practice adopted, and that was, to draw to the meadows such a portion of the manure as the farmer was disposed to appropriate to the meadows and place it in heaps, where it remained until spring, when it was spread probably as even as circumstances would permit, no particular care being taken, however, to reduce the hard lumps which too often remained to dry up in the sun and operate as vexatious nuisances to the scythe and the rake in haying time. This course is now, however, to a great extent done away with, though we yet see occasionally instances of adherence to this erroneous practice.

The provident farmer feels himself bound to regard the comfort and future usefulness of his horse or his ox after a day of labor is passed. He then supplies the animals with wholesome food to repair its exhausted energies and afford the protection which health demands. Interest and philanthropy both require him to do so.

There is an analogy between animals and plants. All are organized bodies and derive their subsistence through organs adapted to themselves. Grass, like the horse or the ox, is nourished and supported by aliment adapted to its use. Like them, it has its period of labor in its yearly growth, and when accomplished they require nutriment and rest.

When the meadow has been shorn of its strength and the "harvest horns" shouted through the valleys and echoed along the hillsides, then it may be supposed that the exhausted nature of the grasses need food and rest, as well as protection, from the hot rays of a summer sun, from which they were but recently protected by the burthen of their own abundant growth. Hence, although we favor the dressing at any time from the removal of the crop in summer until the new growth commences in spring, we give preference to the time as soon as may be, after the crop is taken off. We do so for the reasons stated, that the roots of grass are exhausted from bringing forth the crops; that they are exposed to scorching rays of the sun, and in a few weeks will be severely exposed to cold winds and pinching frosts, and the earlier we guard against these exposures the more successful will be our efforts.

Whatever material used for top-dressing, it should be of a character which will permit it to be spread evenly over the surface, and in order to give an even spreading, we have succeeded best in spreading from the load as it is drawn out. Whether the application be of manure or compost, it will require great care to spread evenly from heaps. In the matter of time, too, as also of even spreading, it had better be done, from the load.—*Country Gentleman.*

Pennsylvania Farming.

A Cumberland county, Penn., farmer writes to the New York Farmers' Club of his way, on this wise:

I plow clover sod in autumn or March, and lime fifty bushels to the acre, and plant with corn. This I harvest by cutting close to the ground, putting in shocks to cure. It is husked at the shocks, the stalks tied in bundles, hauled near the barn and stacked. In the spring the corn stubble is plowed for oats. The oat stubble is dressed with barnyard manure, plowed and harrowed and left till it is time to sow wheat; then go over with a large cultivator and afterward drill in the wheat. If intending to make the field into mowing land, I sow three pecks of timothy seed (per ten acres) with the wheat, and in the spring one bushel of clover seed. Our farms in Cumberland county are generally so divided that we have two parts for corn, two for oats, two for wheat, two for mowing, and one for pasture. This is our regular rotation. Our grass crops are heavy, and generally forty to fifty bushels of corn to the acre, forty to fifty bushels oats, and fifteen to twenty-five bushels wheat.

My farm is clear of foul weeds, and hay and fodder are so plenty that I do not turn stock to pasture before the clover is in head, and I never feed so close that I cannot turn down vegetable matter enough to produce a good crop of corn without any other manure. Still, we are careful to make all the manure possible, which we do by stabling our cattle the greater part of the year. We also stall feed many cattle, preferring to feed all the hay and fodder we make in the stables, using plenty of straw and leaves for litter. The dung heaps from our stable enable us to give our wheat lands a heavy coat of manure every year. By plowing this in deep, we have plenty of wheat to sell and keep; and this is the way we keep our land in good condition—never exhausted, never in want of rest, never in a condition that will not produce a good crop. Land needs to be covered with a crop all the time; we

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do not think clover seed expensive; we can always make as much as we need and have some to sell. There is one thing the farmer must never forget in this course of farming, that is, to use lime as I have recommended, every year upon one portion of the farm.

Making a Poor Farm Rich.

Some twenty-five or thirty years ago, I bought a farm containing about one hundred and twenty acres of land. It had been managed badly for many years preceding the sale of it. Fence rows, where hundreds of loads of stone had been hauled off the adjacent fields, were from ten to twenty feet wide, and were filled with cedars, cherry trees, alders, sassafras, briers, rotten rails, &c. Gutters were washed in various places, exposing a stony, barren soil, that looked like anything else than desirable farm land. An old farmer, on the day of sale, remarked, in reference to the gullies in the fields, that it mattered but little if all such land was washed away. The buildings were old and dilapidated and needed immediate repairs, to render them at all comfortable for man or beast. This property, however, had two redeeming traits—it was well wooded and well watered.

As was the farm, so was the farmer—poor. To better this state of things was the aim of the writer, which could not be accomplished without much hard work. This had to be done, and he had to do it. Wood had to be cut and hauled to the kiln; lime to be burned, hauled and spread; fence-rows cleaned out, fences made, &c. I put one thousand bushels of lime on two ten-acre fields, in the fall, before possession was given. These fields were plowed in the following spring, and put in with corn, which yielded, when husked, not over fifty bushels of sound corn altogether. From one of them, however, I got one hundred bushels of buckwheat, having sown some seed among the sparse and puny-looking stalks of corn about the middle of July.

The next season both fields were put in with oats, averaging forty bushels per acre. I sowed clover and timothy on the oats, and rolled them all in together. The season was favorable, and seed took well. I mowed these fields two summers in succession, and had a very good crop of hay. I then put five hundred bushels of lime on one of the fields, and in the spring planted it with corn, which yielded me four hundred bushels, without the offal. No manure whatever was used for the crop in addition to the lime, excepting the corn was plastered in the hill. Oats, wheat, (manured from the barn-yard,) and

two crops of grass followed. The ground was then limed again as before, and I gathered the ensuing season sixty bushels of corn per acre. The other fields on the farm have been worked as this, with about the same results, excepting the corn, which I think has not been equaled since. There were but two acres of wheat on the place when I bought it, as all the manure made would not cover a greater extent than this, after sufficient was taken out for a potato patch and garden. Two horses and three cows constituted about all the stock. Now there are five horses, and upwards of twenty head of cattle kept. The manure they make is sufficient for twenty acres of ground annually. By the increased productions of my farm, I have been enabled to pay my debts, erect new buildings, and to give my children a good, sound education.

So much for lime; without this fertilizer I could not have lived. I have never sold more than three or four loads of hay, nor bought more than three or four loads of manure. Several times the wheat crop has yielded thirty bushels per acre. I paid \$31 per acre for my farm, and have refused \$110.

I have written this to show that poor land may be made good with lime, and the increased amount of manure obtained as the consequence of liberal application. Two good horses and a yoke of oxen were all the working stock used on the farm for several years. Young farmers will do well to remember that oxen will do as much work as horses, eat less grain, require less expensive harness, can be geared in half the time, can be managed more safely by boys, and in fine are preferable in very many ways.—*Germantown Telegraph.*

 The wool crop of California for 1866, so far marketed, is about 5,000,000 pounds, of which 3,000,000 pounds have been purchased for the mills of San Francisco, and the balance exported to the Atlantic States. Oregon this year produced not far from 1,800,000 pounds of wool, 1,100,000 pounds being taken by her woolen mills, 300,000 pounds by the San Francisco mills, and the balance exported.

THE COMING SUMMER.—French scientific men predict that the summer of 1867 will be cold and wet, like that of 1866; and they base the prediction on the fact that immense masses of ice have broken, or are about to break, away from the extreme north, and will drift to warmer seas, where they will melt, producing cold and vapour.—*The Farmer (Scottish).*

Professional Students and Mechanics in the South.

Are we—under the new order of things, as we were under the old—to be overstocked in Virginia with “professional” men? There is some ground to apprehend that we shall. We have seen it stated that an undue proportion of the students in some of our leading colleges are taking the law and medical tickets. We do not set ourselves up as advisers and directors, and would not arrogantly interfere with the rights or with the private affairs of our fellow-citizens, but we feel it to be our duty as journalists and patriots to combat any practice, any principle, or any idea that may prove prejudicial to the interests of the commonwealth. We have now more lawyers, doctors, and other non-producers than are needed; there are enough to last for twenty or thirty years. Our great wants are *producers* and *men of practical science*, to aid in developing the resources of the State, and to turn them to account when developed. Agriculture, the mechanic arts, and manufactures—the honest, manly industries—are the great sources of wealth. We want to see our young men turn their attention and devote their talents to them, and to let law and physic alone. The competition in these professions is now so great, and will be for the next quarter of a century, that few, comparatively, can attain the distinction and prosperity which so many covet; most of them will be but poor and proud gentlemen as long as they live. Take an intelligent, industrious young man, put him in an iron manufactory, for instance, and let him learn the business thoroughly; then start him in life with a licensed lawyer or medical graduate; and ten to one he will, in fifteen years, be rich or in a fair way to make a fortune, when the lawyer and the doctor will be without any considerable practice, or at best with only income enough to supply their commonest wants. The same result will be attained, if, instead of the iron business, any of the great branches of practical industry are selected. The fortunes are not made by the professional men; the great influence that propels the business of life, and controls society and the destinies of communities and countries, does not emanate from them. *The influence of the commercial, mechanical, and agricultural classes is every year growing more potential.* Formerly they were, as compared with professional men, ignorant and uncultivated; but at this epoch they are the men of expansive views, and the projectors of those great enterprises that build up cities, and confer wealth, power, and grandeur upon nations. The men of ideas, of real intellect, and of supreme

influence belong, in this age, to those classes. They are the men who wield the mighty influences of steam, the telegraph, and all those other practical agencies that control the affairs of life—the destinies of men and nations. If called upon to define this power, we would describe it as “educated labor.” It is that which has built up the wealth and prosperity of England, and that has placed the Northern States so far in advance of the States of the South. Labor was not honored here, under the old order of things, as it deserves to be honored. Almost every young man of any pretensions studied law or medicine; or, being a landed proprietor, turned his attention to farming; or, if the son of a merchant, to merchandise. Only those who had no choice between pursuits became mechanics and artisans. There were really not enough of them for the necessities of the country; and of the comparatively small number a large proportion were ignorant and unskillful; many came from the North—some from abroad. There was in those days an indisposition among the educated young men of the South to engage in business of any sort that was not connected with the learned professions. The mistaken notion prevailed that labor was degrading—a delusion that, more than all other things combined, retarded the growth and development of Virginia. We fear that our young men are not yet emancipated from the fatal influence of this delusion, and that too many of the present generation will follow in the footsteps of those of the past generation only to reap a harvest of disappointment—for the paternal wealth that supported so many in respectable idleness no longer exists.

We rejoice to see so many schools and colleges, and to know that such large numbers of our young men and boys—much larger than we had ventured to hope for—are attending them. One chief object of education is to instill correct ideas into the minds of youth, and to eradicate false ideas and opinions. We hope that our professors and teachers will not forget to combat that pernicious and too prevalent error that labor is not honorable, and that the mechanical occupations of life are unworthy of educated young men. We have known many instances of boys who manifested remarkable mechanical genius, and who, if put into the workshop, would have made their mark in the world, but who, under the fatal influence of that delusion, have been made ciphers and nonentities for life, in consequence of the attempt, against their natural bent, to make lawyers or doctors of them. Every parent should give his children as thorough an education as he can afford. The more tho-

roughly they are educated the better they are fitted for all the pursuits and business of life, no matter what those pursuits or that business may be. The educated mechanic or artisan dignifies labor, and removes the reproach of ignorance which so long existed. Education should embrace the whole range of physical science, for in the new era that will soon dawn upon Virginia, (we speak for our own State especially,) her hitherto undeveloped resources in mines, minerals and water-power will be brought into requisition. Our young men should be prepared to take the lead in this great work and profit by its rewards. *The time is not distant when Virginia will be filled with workshops and manufactures of every kind;* and if our own people are not qualified to take charge of them, strangers will come in and reap the harvest of fame and profit which they will surely yield.—*Richmond (Va.) Whig.*

LIBERAL PRIZES OFFERED.—The question as to "Which is the Best Grape,"—if premiums are capable of settling it—ought to be in a fair way of reaching a decision. At a meeting of Cincinnati Horticultural Society, February 23d, it was resolved to hold an autumn exhibition at that city in connection with the "American Wine Growers' Association of Ohio," at which show the celebrated "Longworth Wine House" offers for competition the following magnificent prizes:

"A silver pitcher, two goblets and waiter, to cost not less than \$350, as the first premium; a silver cup, to cost not less than \$100, as a second premium, and a silver cup, to cost not less than \$50, as a third premium. The first premium to be given to the best general wine grape of our whole country. The second premium to be given to the best variety of grapes, for wine purposes in the State of Ohio, provided it is not awarded to the grape that receives the first premium, in which case it will be given to the second best wine grape in the country. The third premium is to be given to the best table grape for general purposes, in the country. Our requirements are, that the plants, when generally cultivated, shall be perfectly healthy, hardy and productive, and the fruit shall produce a wine of good quality, as to flavor, strength and quantity. The fruit shall be shown at the coming fall consolidated exhibition of the American Wine Growers' Association of Ohio and Cincinnati Horticultural Society, in quantities of 10 lbs., or more, with samples of the wines from the competitors for the first two premiums, if practicable. The committee to be composed of the Hon. Marshal P. Wilder, of Boston; Solon

Robinson, Esq., of New York; a member to be designated by the Lake Shore Grape Growers' Association, at their next meeting; a member to be appointed by the American Wine Growers' Association of Ohio, and Dr. C. W. Spaulding, of Missouri. At the meeting of the committee to award premiums, in case they are not all present, the members present, to fill the vacancies. The award of the committee to be final.—*Country Gentleman.*

FLESH IN GRASS.—Animals can do nothing (says a writer in *All the Year Round*) with inorganic materials, unless these have been previously prepared by the vegetable. The vegetable kingdom, therefore, as Jean Mace says, is the vast kitchen in which are cooked the dinners of the animal kingdom. When we eat the ox, it is the grass which he has eaten that actually nourishes us. For us, he is a mere intermediary, who transfers to us intact the albumen extracted by his stomach from the juices supplied to him by his pasture grounds. He is only a waiter in the grand eating-house of nature. The dishes he brings us have been put into his hands ready prepared. Only, to appreciate his services properly, we must remember that the nutritious portions furnished by grass are very small indeed in their weight and dimensions, and that it would be a weary task for our digestion to have to elaborate them one by one. We might be starved to death with our stomachs full, as happened to some unfortunate Australian explorers, who found plenty of nardoo to eat, but nothing else. The ox presents us with those little portions concentrated in a heaped up plateful; and our stomachs are the gainers by his complaisance.

METHOD OF EXTRACTING CREAM FROM WHEY.—Kilian Egger, of South Cortland, N. Y., has recently obtained a re-issue of the patent granted to him (Sept. 25, 1866) for an improved method of extracting cream from whey. After the cheese-curd has been separated from the whey, the latter is put in tanks, which may be about one foot deep, more or less; and to ten gallons (more or less) of whey a handful of salt is added. It is preferable that the tanks above mentioned should be made of zinc or have zinc bottoms, but they may be made of other material provided it is a good conductor of heat, or that the bottoms are of good conducting material. These tanks containing the whey are placed in running water, or upon a cool cellar floor, and allowed to stand for a few hours, when the cream is skimmed off and churned. The churning is performed at a lower temperature than is commonly used in churning butter from fresh cream.

Farmers' Gardens.

Perhaps there is no one thing connected with the culture of the soil so badly and universally neglected by farmers as their gardens. How many in your neighborhood, reader, have what may be strictly termed a good garden from year to year? How many grow an abundant supply of small fruits for the use of the family? How many have asparagus, radishes and salads plentifully, or at all, early in the season; melons, cucumbers, squashes, tomatoes, cabbages, peas, beans, green corn, &c., in the summer months; and celery, vegetable oysters, parsnips, turnips, horse-radish, &c., in the fall, winter, and early spring? All farmers can and should have them; nothing which they eat is cheaper, more grateful or healthful than these, together with the summer fruits. If we can persuade you to take the pains, and incur the slight expense necessary to their production, we shall be amply rewarded for our labor by the gratitude and satisfaction which we know those feel who are dependent on you for support, and who eat daily at your table.

Have you a garden spot? It should be a choice piece of land; not large, but rich, dry, warm, near the dwelling, and enclosed to prevent the depredations of fowls and animals. If the soil is poor you have the means at hand to make it rich; if heavy or wet, thoroughly underdrain it—as it is small you can afford this expense. We repeat, it need not be large, for a small garden, well tilled, is much better, and less costly, than a large one overrun with weeds, and cultivated like your fields. Leaf mould from the woods, with ashes, lime and plaster, are the best manures you can use, unless you can spade or plough in deep fine barnyard manure. This year you should make a compost heap, and have it on hand for the next.

If the garden is small, it is best not to plough, but rather spade. First of all lay it out well; make a bed or border, as they are called, four or five feet wide, all round the outside. Next to this a walk; then one or two broad cross-walks, and reserve the rest for beds and walks, as crops and circumstances shall dictate. Make up your mind now to have a good garden this year; and in our next article we will try and tell you how to start the early vegetables and seeds in a cheap and simple manner.—*Rural New Yorker.*

••• A single thistle, dock, or mullein, if allowed to perfect its seeds, and to disseminate them without hindrance, broadcast over the soil, will entail a task work which it will require much painful labor to perform.

Noxious Insects Naturalized in America.

No. 12, (September, 1866,) of the "Practical Entomologist," (Philadelphia,) contains an interesting article by Mr. B. D. Walsh, on this subject. From it we learn that fully one-half of the worst American insect foes have been imported from Europe. Thus the Hessian fly, (*Cecidomyia destructor*), was introduced nearly ninety years since; the wheat midge, (*Diplois tritici*), about forty-five; the bee-moth, (*Galeria cereana*), at the commencement of the nineteenth century; the apple moth, (*Carpocapsa pomonella*), the currant clear wing, (*Trochilium tipuliforme*), the meal worm, (*Tenebrio molitor*), the cockroach, (*Blatta orientalis*), at definite periods, and within the last few years the asparagus beetle, (*Crioceris asparagi*), has made its appearance in the State of New York; finally the gooseberry saw-fly, (*Nematus ventricosus*), has since 1862 showed itself in several places, and has already proved very destructive. Mr. Walsh doubts if even the so-called American cockroach, (*Blatta Americana*), be really indigenous, and suspects its importation from Asia. Probably, with justice, he states that the injury inflicted on America by European insects is only reciprocated to a very slight extent; the chief insect pests for which we have to thank America being the pea-weevil, (*Bruchus pisi*), and the now two-well known house ant, (*Myrmica molesta*.) He argues, therefore, that though popularly known as the "New World," the American continent being the older, its plants and animals mostly belong to an old-fashioned creation, and can no more stand their ground against their more vigorous imported European competitors, than the Red Indian can hold his own against the Caucasian race. Mr. Walsh's theoretical speculations always deserve earnest consideration, and, in this case, the facts appear to bear him out. One of our common white butterflies has already obtained a footing in Canada, and perhaps eventually may prove more destructive there than the indigenous *Pieris oleracea*. Nor is America the only land so situated, inasmuch as it seems ordained that the European race, wherever it may locate itself, shall take with it some of its natural pests. Thus it is well known that some of our common weeds flourish in Australia and New Zealand with far greater luxuriance than in Europe.—R. M'LACHLAN, in the (English) *Entomologist's Monthly Magazine*.

WOOL IN VERMONT.—Vermont produced this year nearly 4,000,000 pounds of wool. She is fifth in the loyal States in producing power—New York, Ohio, Michigan, and Pennsylvania ranking above her.

Sunday Reading.

Because we are not always masters of our own affairs, nor consequently of our time, therefore ought we to have ever ready at hand a good collection of texts, which contain in few words the power and spirit of gospel motives, the perfection and beauty of duties, and the substance of advice and counsel, and to fix these so in our memory, that they may serve as a shield, for us to oppose, as our Saviour did, against the darts of the devil, and as a supply of excellent and useful thoughts upon a sudden: so that, in all the little interruptions of business, and the many little vacancies of the day, the mind, which is an active and busy spirit, may never want a proper subject to work upon, much less lose itself in wild and lazy amusements, or defile itself by vain and vicious thoughts. But we must not only take care that meditation be frequent, but also that it be not loose and roving. To which end it will be necessary to study ourselves, as well as the scripture, and to be intimately acquainted with the advantages and disadvantages of our constitutions; so that in our meditations on the scriptures we may more particularly have an eye to those vices, we are most obnoxious to, and those virtues, which are either more necessary, or more feeble and undergrown.

Some there be, that for extreme refuge in their evil doings, do run to God's predestination and election, saying, that, "if I be elected to salvation by God, I shall be saved, whatsoever I do;" but such be great tempters of God, and abominable blasphemers of God's holy election; they cast themselves down from the pinnacle of the temple in presumption, that God may preserve them by His angels through predestination.

There were two remarkable periods of Christ's life, His *intrat* and His *exit*, His entrance into His public ministry at His baptism, and His finishing it at His Passion; and at both we have the devil fiercely encountering Him. When the christian is about some noble enterprise for God's glory, then Satan will lie, like a serpent, in the way, "an adder in the path, that biteth his horse's heels, so that his rider shall fall backward."

His defensive weapons were principally three, corresponding to the number of our three mortal enemies. He used the *wilderness*, against the temptations of the world; *fasting*, against the temptations of the flesh; and *prayer*, against the temptations of the devil.

The devil and sin, in themselves considered, are but weak and impotent; they cannot prevail over that soul, which yields not unto them. The evil spirit then only prevails over us, when we ourselves consent to his suggestions; all his strength lies in our treachery and falsehood to our own souls. Sin is nothing else but a degeneration from true goodness, conceived by a dark and cloudy understanding, and brought forth by a corrupt will; it hath no consistency in itself, or foundation of its own to support it. Mendacium non habet pedes; it hath no feet, no basis of its own to subsist and rest itself upon. Let us withdraw our will and affections from it, and it will soon fall into nothing.

Seeing God's providence is manifest in ordinary means, it behoveth every man in his calling to use them carefully; and when ordinary means be at hand, we must not look for any help without them, though the Lord be able to do what He will without means. Our Saviour avoucheth it to be flat *tempting* of God, for Him to leap down from the pinnacle of the temple to the ground; whereas there was an ordinary way at hand to descend by stairs.

With what fear, reverence, and holy joy, should we open the Bible, the book of truth and happiness, God's heart opened to man; and yet the whole, and every part of it, secreted from him, and hid under an impenetrable veil, till he opens his heart to God.

It frequently happens that the enemy permits those, whom he has tempted, to continue some time in quiet, that he may surprise them more easily, when they least think of him, and make them fall into sin by some violent and sudden attack.

A false interpretation of scriptures causes that the gospel of the Lord becomes the gospel of man, or, which is worse, of the devil.

Poverty, predestination, and ambition are the three quivers, from which the devil drew his arrows.

An adulterous sense croseth the verity of scripture, as much as does the corruption of the text.

It is a fearful mistake to believe that, because our wishes are not accomplished, they can do no harm.

THE STEAM PLOUGH AT THE SOUTH.—New Orleans papers announce the arrival there of one of Fowler's English Steam Ploughs. We quote:

Mr. Max Eighth, formerly chief engineer on the staff of Pasha Hahn, when that Pasha held the vice-royalty of Egypt, comes with the machine to superintend experiments made with it. Having witnessed in Egypt the operation of the plough, he is convinced that it will be as successful here as it was on the Nile, and yesterday his favorite implement was tested on the fair grounds. A large company witnessed the trial, among whom were several gentlemen whose occupation from boyhood has been that of a planter.

Baltimore Markets, Mar. 23, 1867.

COFFEE.—Rio, 18½a19½ cts. gold, according to quality. Luguayra —, and Java 25a26½ cts. gold.

COTTON.—We quote prices as follows, viz:

	Grades.	Uppland.	Gulf.
Ordinary		25	—
Good do.		26½	—
Low Middling		28	—
Middling		30	—

FERTILIZERS.—Peruvian Guano \$80; Patapsco Co's \$60; Reese & Co's. Soluble Pacific Guano, \$65; Flour of Bone, \$60; G. Ober's (Kettlewells) AA Manipulated, \$70; A do. \$60; Ammoniated Alkaline Phosphate, \$55; Alkaline Phos. \$45; Baltimore City Company's Fertilizer, \$40; do., Flour of Bone, \$60; do., Ground Bone, \$45; do., Pourette, \$20; Baugh's Raw-bone Phosphate, \$56; Maryland Powder of Bone, \$50; Andrew Coe's Super-Phosphate of Lime, \$60; all per ton of 2,000 lbs.; Pure Ground Plaster, \$13.50a \$14.00 per ton, or \$2 50 per bbl. Shell Lime, slackened, 6c., unsackled, 10c. per bushel, at kilns.

FISH.—*Mackerel.*—No. 1, \$19a21; No. 2, \$16 50a17.50; No. 3, \$14a15. *Herring.*—Labrador, \$5.50a6.50; Potomac and Susqueh'na, —; Codfish, 5½a6½ cts. per lb.

FLOUR.—Howard Street Super and Cut Extra, \$11.00a \$12.00; Family, \$14.50a16.00; City Mills Super, \$10.62a 11.50; Baltimore Family, \$17.50.

Rye Flour and Corn Meal.—Rye Flour, new, \$7.25a 7.75; Corn Meal, \$4.20a5.25.

GRAIN.—*Wheat.*—Good to prime Red, \$3 20a3.30; White, \$3.40a\$3.50.

Rye.—\$1.35a\$1.50 per bushel.

Oats.—Heavy to light—ranging as to character from 65 a70c. per bushel—bulk.

Corn.—White, \$1.08a\$1.10; Yellow, \$1.08a\$1.08 per bushel.

HAY AND STRAW.—Timothy \$28a32, and Rye Straw \$28 per ton.

BEANS.—\$3.00a3.25 as to quality.

POTATOES.—\$1.00 per bushel.

PROVISIONS.—*Bacon.*—Shoulders, 10½a11 cts.; Sides, 12a13½; Hams, plain bagged, 16 cts.; sugar cured, 17 cts. per lb.

SALT.—Liverpool Ground Alum, \$2.20a2.25; Fine, \$3 25; Turk's Island, 62a65c. per bushel.

SEEDS.—Clover, held at \$9.00a9.25; Timothy, \$3.75a 4.00; Flaxseed, \$2.75a\$3.00.

TOBACCO.—We give the range of prices as follows:

	Maryland.
Frosted to common	\$2.50a 3.00
Sound common	3.50a 4.00
Middling	6.00a 8.00
Good to fine brown	10.00a15.00
Fancy	17.00a25.00
Upper country	3.00a30.00
Ground leaves, new	3.00a5.00

Ohio.

Inferior to good common	4.00a 6.00
Brown and spangled	7.00a12.00
Good and fine red and spangled	13.00a17.00
Fine yellow and fancy	20.00a30.00

WHISKEY.—\$2.25a2.30 per gallon, in barrels.

WOOL.—We quote: Unwashed, 26a28 cts. per lb.; Tub-washed, 45a47 cts.; Fleece, common, 42a47 cts.; Pulled, No. 1, 31a35 cts.; Merino, 38a41 cts.

CATTLE MARKET.—Common, \$7.50; Good, \$8 00a\$8.75; Prime Beeves, \$9.00a9.25 per 100 lbs.

Sheep.—8a8½ cents per lb. gross—scarce.

Hogs.—\$10.75a11.50 per 100 lbs., net.

Wholesale Produce Market.

Prepared for the American Farmer by ELLICOTT & HAWKS, Producers and Commission Merchants, 67 Exchange Place.

BALTIMORE, Mar. 23, 1867.

BUTTER.—Ohio, in brls. and kegs, 20 to 25 cts.; Roll, 60 to 33; Virginia and Pennsylvania in kegs and tubs, 20 to 25; Glades, 25 to 30; Goshen, 25 to 45.

BEEFWAX.—42 cts.

CHEESE.—Eastern, 22; Western, 18a20c.

DRIED FRUIT.—Apples, 10; Peaches, 17.

Eggs.—In barrels, 21 cents per dozen.

FEATHERS.—80 cents for good Southern.

LARD.—Brls. 13, kegs 14, jars and other country packages 15 cents.

TALLOW.—11½ cents.

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